PHARMACOPŒIA

COLLEGII REGALIS

MEDICORUM

LONDINENSIS.

M.DCCC.IX.

EDITIO ALTERA.

Londini:

TYPIS G. WOODFALL, ANGEL-COURT, SKINNER-STREET;

VENEUNT APUD LONGMAN, HURST, REES, ORME ET BROWN,

PATERNOSTER-ROW.

1815.

SACRÆ MAJESTATI

SERENISSIMI CELSISSIMIQUE

PRINCIPIS

GEORGII TERTII,

DEI GRATIA,

BRITANNIARUM REGIS,

FIDEI DEFENSORIS,

DUCIS BRUNSVICENSIS ET LUNENBURGENSIS,

S. R. I.

ARCHITHESAURARII, ET ELECTORIS,

HOC OPUS,

ITERUM RECOGNITUM AC RETRACTATUM,

SUMMO CUM STUDIO ET REVERENTIA,

IN MANUS ET CLIENTELAM TRADIT

COLLEGIUM MEDICORUM LONDINENSE.

Imprimatur

Hic liber, cui titulus, PHARMACOPŒIA COLLEGII REGALIS MEDICORUM LONDINENSIS.

Datum ex ædibus collegii in comitiis censoriis, Junii *Mensis* 26to 1809.

LUCAS PEPYS, Præses.

Johannes Mayo, *Gulielmus Heberden,* *Ricardus Patricius Satterley,* *Edouardus Nathaniel Bancroft,*	Censores.

At the Court at the *Queen's Palace*, the 26th of *July*, 1809.

PRESENT,

The King's Most Excellent MAJESTY.

Archbishop of *Canterbury*.
Lord Chancellor.
Lord President.
Earl of *Liverpool*.
Earl of *Harrowby*.
Lord *Mulgrave*.
Mr. Chancellor of the Exchequer.
Mr. Secretary *Canning*.
Sir *David Dundas*, K. B.
Mr. *Ryder*.

WHEREAS there was this day read at the Board, the humble memorial of Sir LUCAS PEPYS, Baronet, Physician to His Majesty, and President of the College or Commonalty of the Faculty of Physic in *London*, setting forth, that the said President and College have, with great care, pains, and industry,

revised, corrected, and reformed a book by them formerly published, intituled *Pharmacopœia Collegii Regalis Medicorum Londinensis*, prescribing and directing the manner of preparing all sorts of medicines therein contained, together with the true weights and measures by which they ought to be made: which book is now perfected and ready to be published, and, it is conceived, will contribute to the public good of His Majesty's Subjects, by preventing all deceits, differences, and uncertainties in making or compounding of medicines, if, for the future, the manner and form prescribed therein should be practised by Apothecaries and others in their compositions of medicines: the Memorialist therefore most humbly prays, that His Majesty will be graciously pleased to enforce the observance thereof in such manner as to His Majesty shall seem meet:---His Majesty this day took the said memorial into His Royal consideration, and being desirous to provide in all cases for the common good of his people, and being persuaded that the establishing of the general use of the said book may tend to the prevention of such deceits in the making and compounding of medicines, wherein the lives

and health of His Majesty's Subjects are so highly concerned, hath therefore thought fit, by and with the advice of His Privy Council, hereby to notify to all Apothecaries and others concerned, to the intent they may not pretend ignorance thereof, that the said book, called *Pharmacopœia Collegii Regalis Medicorum Londinensis*, is perfected and ready to be published: and His Majesty doth therefore strictly require, charge and command all and singular Apothecaries and others, whose business it is to compound medicines, or distil oils or waters, or make other extracts, within any part of His Majesty's kingdom of *Great Britain* called *England*, dominion of *Wales*, or town of *Berwick-upon-Tweed*, that they, and every of them, immediately after the said *Pharmacopœia Collegii Regalis Medicorum Londinensis* shall be printed and published, do not compound or make any medicine or medicinal receipt or prescription, or distil any oil or waters, or make other extracts that are or shall be in the said *Pharmacopœia Collegii Regalis Medicorum Londinensis* mentioned or named, in any other manner or form than is or shall be directed, prescribed, and set down in the said book, and according to

the weights and measures that are or shall be therein limited, except it shall be by the special direction or prescription of some learned Physician in that behalf. And His Majesty doth hereby declare, that the offenders to the contrary, shall not only incur His Majesty's just displeasure, but be proceeded against for such their contempt and offences, according to the utmost severity of law.

STEPH: COTTERELL.

NOMINA SOCIORUM

ET

PERMISSORUM

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LONDINENSIS.

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Thomas Hancock.

PERMISSI AD ARTEM OBSTETRICAM EXERCENDAM.

Thomas Denman.
Michael Underwood.
Carolus Combe.
Johannes Squire.
Johannes Clarke.

PERMISSI EXTRA URBEM.

Gulielmus Farr.
Jacobus Vaughan.
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Christophorus Mann Torre.
Carolus Brown.
Gulielmus Lonsdale.
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Edvardus Long Fox.
Gulielmus May.
Johannes Nott.
I. Newman.
Samuel Edmonds.
Jacobus Holman.
Gaspard Carolus de la Rive.
Johannes Chapman.
Johannes Sherwen.
Johannes Edmundus Stock.
Johannes Jacobus de Roches.
Johannes Hull.
Stephanus Luke.

Johannes O'Ryan.
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Johannes Robinson.
Jacobus Clarke.
Patricius Miller.
Gulielmus Silver.
Robertus Barker.
Tempest Coulthurst.
Gualterus Carolus Heywood.
Jacobus Gasking.
Robertus Anderson.
Johannes Franciscus Berger.

PRÆFATIO.

ANNIS viginti duobus vix elapsis, Pharmacopœiam nostram incudi reddere iterùm statuimus. Hunc laborem nobis imposuit culta indiès et amplificata Naturæ scientia. Illa enim intra paucos hos annos ità erroribus purgata et experimentis illustrata est, ità principiis novis firmioribus, altioribus, undequaque stabilita, ut si in hâc unâ parte, quæ ad Medicinam spectat, neglecta et rudis jaceret, id nobis meritò dedecori verteretur; præcipuè cum duæ finitimæ huic nostræ Artes, Chemica, et Botanica, hæc, omnes omnium regionum Herbas cum labore maximo exploraverit; illa integram suam disciplinam in meliorem commutaverit, et linguam penitùs novam

loqui didicerit. Non ulteriùs igitur spatium esse moræ videbatur, quin medicamentorum omnium vires et naturam cum summâ diligentiâ perpendamus, ut si fuerint, quæ vel obsoleta vel supervacua judicemus, loco moveamus.

Antecessores nostri plurimùm sanè contulerunt ad singula certiùs promptiùsque conficienda; jàm tùm enim Philosophiæ lux nova exoriebatur, quæ pristinæ disciplinæ nubila discutiebat, formidines vanas cum tenebris simul fugabat, secreta denique Naturæ eatenùs recludebat, ut quid incongruum esset, quid consentaneum, quænam inter se pugnantia, quænam in compositione aptissimè consocianda, medicorum oculis palàm tandem ostenderet. Sed ea est artis conditio, ut emendari quidèm possit, absoluta reddi non possit.

Exindè igitur in annos singulos aliquid medicinæ accessit, neque à priorum incœptis

hæc ætas nostra declinavit, quin et morborum quorundam signa accuratiùs exposuit, et quibusdam remedia magis idonea repcrit, tum medicamentorum alia inutilia ct inepta rejecit, alia valentiora usu ct autoritate comprobavit; universa etiam aut scrutata est diligentiùs, aut quomodo peritiùs componantur, edocuit. Cum nos igitur ad hoc opus recognoscendum animum primùm intendimus, multa invenimus quæ cum perfectiore nostræ artis disciplinâ malè congruebant, plura quibus abhorrebat erudita illa rerum appellandarum norma, quam intereà physici excogitaverant, nonnulla etiam quæ addi postulabat ipsius operis ordo, et concinnitas. Non ideò tamen nos fefellit multum molestiæ, multum etiam periculi, à crebrâ Pharmacopœiarum mutatione provenire: sed nobis persuasum erat, ea tandèm et stabilia maximè et utilia fore, quæ cum rectâ ratione arctissimè convenirent. Quibus perpensis, nomina medicamentis dare, quantùm fieri potuit, legitima, et naturæ cujusque congruentia, statuimus:

sic tamen, ut provideremus ne titulorum amplificatio medicos impediat. Si pluribus igitur vocabulis opus fuerit, ut rei cujuspiam compositionem manifestè in appellando designemus, ei simplicius, etsi minùs eruditum cognomen apponere maluimus.

Quod ad nos attinet, nihil laboris detrectavimus quo librum hunc quàm perfectissimum ederemus. Non ità tamen, ut omnibus nos satisfacturos esse, vel errores nullos admisisse, confidamus; quos siquis asperiùs notare voluerit, reputet modo quantum et varietatis et difficultatis hujusmodi opus amplectitur, et paucis maculis non offensum iri speramus.—Sed hæc hactenus.

Quædam vero obnixiùs excusanda sunt, quæ videantur aut plus quàm satis est ab usu populari discedere, ut *Anthemis* et *Lytta*, aut horridum quid ac barbarum sonare, ut *Potassa*. Diù tamen restitimus: sed quid contra omnium Physicorum autoritatem facere, aut

quî potuimus nomina Animalium, Herbarum, Lapidumve, ea retinere, quæ rebus omninò diversis Scriptores in eo genere principes imposuerant? Satiùs igitur esse putavimus nos in rudis ingenii crimen incurrere, quàm anceps aliquid, et dubiæ significationis admittere, aut voce unâ atque alterâ ab universâ chemicorum consuetudine dissentire.

Quod ad mutationem attinet quam in Mensuris liquidorum facere instituimus, ea cum ab omnibus dudum efflagitata fuerit, ne studio novitatis fieri existimetur, non est cur timeamus. Idem nomen liquidorum mensuræ, idem solidorum ponderi, dari, errorem frequentissimè induxit. Illam autem mensuram, cui *Congio* nomen est, et cujus capacitas à Rege et Senatu præscripta est, mutare non ausi sumus, sed in partes pro arbitrio dividere, et unicuique titulum assignare, non licitum modò, sed officii esse nostri duximus.

Quod superest, eam nos in hoc opere per-

ficiendo rationem adhibuisse speramus, quæ rei tractandæ sit accommodatissima. Nobis certè laboris et curarum præmia suavissima comparabuntur, si qualiacunque hæc sint, utilitati publicæ conducant, et vel hoc præstare videantur, ut morborum remedia paulò certiora indicentur, morbi ipsi paulò citiùs mitigentur.

ORDO CAPITUM.

PHARMACOPŒIA

LONDINENSIS.

PONDERA, MENSURÆ, &c.

CUM duo ponderum genera in Angliâ usu recepta sint, quorum altero aurum et argentum, altero cæteræ fere merces æstimantur, nos priore utimur, quod et *Troy Weight* vocatur; libramque sic dispertimus, *videlicet:*

Libra	℔	habet	uncias duodecim,	℥
Uncia		habet	drachmas octo,	ʒ
Drachma		habet	scrupulos tres,	℈
Scrupulus		habet	grana viginti,	gr.

Notas apposuimus, quibus pondus quodque designare consuetum est.

Mensura etiam liquidorum dispar est, alia cerevisiæ, alia vino propria ; posteriorem nos adhibemus, mensurisque liquidorum utimur ex congio vinario deductis.

Congius vinarius legibus regni definitus est, quem ad usus medicinales sic dispertimus, *videlicet :*

Congius	habet	Octarios octo,	O
Octarius	habet	Fluiduncias sedecim	f℥
Fluiduncia	habet	Fluidrachmas octo,	fʒ
Fluidrachma	habet	Minima sexaginta,	♏

Notas apposuimus, quibus quamque mensuram designamus.

Ne quis error nascatur ex nominibus, quæ ponderibus et mensuris nullo discrimine imposita sunt, nova quædam finximus non inconsultè, quæ brevis usus reddet facilia.

Ad hæc, mensurâ vitreâ, intervallis æqualibus signatâ, minimas liquidorum partes metimur. Etenim fallax et incertus est guttarum numerus, tincturæ cujuslibet guttis fere bis totidem, quot aquæ, eandem mensuram implentibus.

Videndum est, ne quid cupri, aut plumbi, insit in materiâ ex quâ fiunt mortaria, mensuræ, infundibula, aut alia vasa, in quibus medicamenta seu præparantur, sive servantur; itaque fictilia, plumbo vitrifacta, aliena sunt.

Præparata acida, alkalina, terrea, metallica, tum sales omnis generis, in vasis vitreis obturatis servare oportet.

Caloris gradum thermometro Fahrenheitiano metimur; et, cum CALOREM FERVENTEM præcipimus, istum intelligimus qui notatur gradu ducentesimo duodecimo. CALOR verò LENIS indicat, qui est inter gradum nonagesimum et centesimum.

Quoties fit mentio PONDERIS SPECIFICI, ponimus id, de quo agitur, esse caloris gradûs quinquagesimi quinti.

BALNEUM AQUOSUM fit, ubi res quælibet, suo vase contenta, aut aquæ ipsi ferventi, aut ejus vapori exponitur, ut incalescat.

BALNEUM ARENÆ fit ex arena paulatim calefaciendâ, in quam res quælibet, suo vase contenta, imponitur.

MATERIA MEDICA.

IN secundo ordine, VEGETABILIA ex Linnæi Speciebus Plantarum a *Willdenow* editis, ANIMALIA secundum *Linnæi* Systema Naturæ a *Gmelin* editum, RES CHEMICÆ nominibus recentioribus, designantur, nisi aliter indicatum sit.

Abietis Resina.	Pinus Abies. *Resina concreta.*
Absinthium.	Artemisia Absinthium.
Acaciæ Gummi.	Acacia vera. *Gummi.*
Acetosæ Folia.	Rumex Acetosa. *Folia.*
Acetosella.	Oxalis Acetosella.
Acetum.	Acidum aceticum impurum.

Acidum sulphuricum. Hujus pondus specificum est ad pondus specificum aquæ distillatæ, ut 1,850 ad 1,000.	Acidum sulphuricum.
Aconiti Folia.	Aconitum Napellus. *Folia.*
Adeps.	Sus Scrofa. *Adeps.*
Ærugo.	Subacetas Cupri impura.
Allii Radix.	Allium sativum. *Radix.*
Alöes spicatæ Extractum.	Alöe spicata. *Extractum.*
Alöes vulgaris Extractum.	Alöe vulgaris. SIBTHORP, *Flor. Græc.* *Extractum.*
Althææ Folia, et Radix.	Althæa officinalis. *Folia, et Radix.*
Alumen.	Supersulphas Aluminæ et Potassæ.
Ammoniacum.	Heracleum gummiferum. WILLDENOW, *Hort. Berol.* *Gummi-resina.*

Ammoniæ Murias.	Murias Ammoniæ.
Amygdalæ amaræ.	Amygdalus communis. Var. γ.
Amygdalæ dulces.	Var. β. *Nuclei.*
Amylum.	Triticum hybernum. *Amylum.*
Anethi Semina.	Anethum graveolens. *Semina.*
Anisi Semina.	Pimpinella Anisum. *Semina.*
Anthemidis Flores.	Anthemis nobilis. *Flores simplices.*
Antimonii Sulphuretum.	Sulphuretum Antimonii.
Argentum.	Argentum purificatum.
Armoraciæ Radix.	Cochlearia Armoracia. *Radix.*
Arsenici Oxydum.	Oxydum Arsenici album.
Asari Folia.	Asarum Europæum. *Folia.*
Assafœtidæ Gummi-resina.	Ferula Assafœtida. *Gummi-resina.*

Avenæ Semina.	Avena sativa. *Semina, tunicis nudata.*
Aurantii Baccæ.	Citrus Aurantium (Hispalense). *Baccæ.*
Aurantii Cortex.	*Baccarum Cortex exterior.*
Balsamum Peruvianum.	Myroxylon peruiferum. *Balsamum.*
Balsamum Tolutanum.	Toluifera Balsamum. *Balsamum.*
Belladonnæ Folia.	Atropa Belladonna. *Folia.*
Benzöinum.	Styrax Benzöin. *Balsamum.*
Bistortæ Radix.	Polygonum Bistorta. *Radix.*
Cajuputi Oleum.	Melaleuca Cajuputi. *Oleum essentiale.*
Calamina.	Carbonas Zinci impura.
Calami Radix.	Acorus Calamus. *Radix.*
Calumbæ Radix.	*Plantæ adhuc anonymæ Radix.*

Cambogia.	Stalagmitis Cambogiöides. *Gummi-resina.*
Camphora.	Laurus Camphora. *Concretum sui generis, distillatione paratum.*
Canellæ Cortex.	Canella alba. *Cortex.*
Capsici Baccæ.	Capsicum annuum. *Baccæ.*
Carbo Ligni.	Carbo Ligni recens.
Cardamines Flores.	Cardamine pratensis. *Flores.*
Cardamomi Semina.	Elettaria Cardamomum. *Semina.* MATON, *in Act. Soc. Linn.*
Caricæ Fructus.	Ficus Carica. *Fructus conditus.*
Carui Semina.	Carum Carui. *Semina.*
Caryophylli.	Eugenia caryophyllata. *Flores nondum explicati, siccati.*
Caryophyllorum Oleum.	*Eorum Oleum essentiale.*

Cascarillæ Cortex.	Croton Cascarilla. *Cortex.*	
Cassiæ Pulpa.	Cassia Fistula. *Lomentorum Pulpa.*	
Castoreum.	Castor Fiber (Rossicus). *Concretum sui generis.*	
Catechu Extractum.	Acacia Catechu. *Extractum.*	
Centaurii Cacumina.	Chironia Centaurium. *Cacumina.*	
Cera alba.		
Cera flava.		
Cerevisiæ Fermentum.		
Cetaceum.	Physeter macrocephalus. *Concretum sui generis.*	
Cinchonæ cordifoliæ Cortex.	Cinchona cordifolia. *Cortex.*	ZEA, in "*Anal. de Hist. Nat,*"
Cinchonæ lancifoliæ Cortex.	Cinchona lancifolia. *Cortex.*	

Cinchonæ oblongifoliæ Cortex.	Cinchona oblongifolia. *Cortex.* Zea, in "*Anal. de Hist. Nat.*"
Cinnamomi Cortex.	Laurus Cinnamomum. *Liber.*
Cinnamomi Oleum.	*Ejus Oleum essentiale.*
Coccus.	Coccus Cacti.
Colchici Radix.	Colchicum autumnale. *Radix recens.*
Colocynthidis Pulpa.	Cucumis Colocynthis. *Pomorum Pulpa.*
Conii Folia.	Conium maculatum. *Folia.*
Contrajervæ Radix.	Dorstenia Contrajerva. *Radix.*
Copaiba.	Copaifera officinalis. *Resina liquida.*
Coriandri Semina.	Coriandrum sativum. *Semina.*
Cornua.	Cervus Elaphus. *Cornua.*
Creta.	Carbonas Calcis friabilis.

Croci Stigmata.	Crocus sativus (Anglicus). *Stigmata.*
Cumini Semina.	Cuminum Cyminum. *Semina.*
Cupri Sulphas.	Sulphas Cupri.
Cuspariæ Cortex.	Cusparia febrifuga. BONPLAND, *Voy.* *Cortex.*
Cydoniæ Semina.	Pyrus Cydonia. *Semina.*
Dauci Radix.	Daucus Carota (hortensis). *Radix.*
Dauci Semina.	Daucus Carota (agrestis). *Semina.*
Digitalis Folia.	Digitalis purpurea. *Folia.*
Dolichi Pubes.	Dolichos pruriens. *Leguminum Pubes.*
Dulcamaræ Caulis.	Solanum Dulcamara. *Caulis.*
Elaterii Poma.	Momordica Elaterium. *Poma recentia.*
Elemi.	Amyris Elemifera. *Resina.*

Euphorbiæ Gummi-resina.	Euphorbia officinarum. *Gummi-resina.*
Farina.	Triticum hybernum. *Farina.*
Ferrum.	Ferri Ramenta et Fila.
Filicis Radix.	Aspidium Filix mas. SMITH, *Flor. Brit.* *Radix.*
Fœniculi Semina.	Anethum Fœniculum. *Semina.*
Fucus.	Fucus vesiculosus.
Galbani Gummi-resina.	Bubon Galbanum. *Gummi-resina.*
Galla.	Cynips Quercûs folii. *Nidus.*
Gentianæ Radix.	Gentiana lutea. *Radix.*
Glycyrrhizæ Radix.	Glycyrrhiza glabra. *Radix.*
Granati Cortex.	Punica Granatum. *Pomorum Cortex.*
Guaiaci Resina, et Lignum.	Guaiacum officinale. *Resina, et Lignum.*
Hæmatoxyli Lignum.	Hæmatoxylon Campechianum. *Lignum.*

Hellebori fœtidi Folia.	Helleborus fœtidus. *Folia.*
Hellebori nigri Radix.	Helleborus niger. *Radix.*
Hordei Semina.	Hordeum distichon. *Semina, tunicis nudata.*
Humuli Strobili.	Humulus Lupulus. *Strobili siccati.*
Hydrargyrum.	
Hyoscyami Folia, et Semina.	Hyoscyamus niger. *Folia, et Semina.*
Jalapæ Radix.	Convolvulus Jalapa. *Radix.*
Ipecacuanhæ Radix.	Callicocca Ipecacuanha. BROTERO, *in Act. Soc. Linn.* *Radix.*
Juniperi Baccæ, et Cacumina.	Juniperus communis. *Baccæ, et Cacumina.*
Kino.	*Arboris nondum descriptæ, Africanæ, Extractum.*
Lapis calcareus.	Carbonas Calcis dura.
Lavandulæ Flores.	Lavandula Spica. *Flores.*
Lauri Baccæ, et Folia.	Laurus nobilis. *Baccæ, et Folia.*

Lichen.	Lichen Islandicus.
Limones.	Citrus medica. *Baccæ.*
Limonum Cortex.	*Earum Cortex exterior.*
Limonum Oleum.	*Corticis exterioris Oleum essentiale.*
Linum catharticum.	Linum catharticum.
Lini usitatissimi Semina.	Linum usitatissimum. *Semina.*
Lytta.	Lytta vesicatoria.
Magnesiæ Sulphas.	Sulphas Magnesiæ purificata.
Malva.	Malva sylvestris.
Manna.	Fraxinus Ornus. *Succus concretus.*
Marrubium.	Marrubium vulgare.
Mastiche.	Pistacia Lentiscus. *Resina.*
Mel.	
Mentha piperita.	Mentha piperita. SMITH, *in Act. Soc. Linn.*
Mentha viridis.	Mentha viridis. SMITH, *in Act. Soc. Linn.*
Menyanthes.	Menyanthes trifoliata.
Mezerei Cortex.	Daphne Mezereum. *Radicis Cortex.*

Mori Baccæ.	Morus nigra. *Baccæ.*
Moschus.	Moschus moschiferus. *Concretum sui generis.*
Myristicæ Nuclei.	Myristica moschata. *Nuclei, et Oleum eorum expressum.*
Myrrha.	*Arboris nondum descriptæ Gummi-resina.*
Olibanum.	Juniperus Lycia. *Gummi-resina.*
Olivæ Oleum.	Olea Europæa. *Drupæ Oleum expressum.*
Opium.	Papaver somniferum. *Capsularum immaturarum Succus concretus (Turcicus).*
Opopanacis Gummi-resina.	Pastinaca Opopanax. *Gummi-resina.*
Origanum.	Origanum vulgare.
Ovum.	Phasianus Gallus. *Ova.*
Papaveris Capsulæ.	Papaver somniferum. *Capsulæ maturæ.*
Petroleum.	

Pimentæ Baccæ.	Myrtus Pimenta. *Baccæ.*
Piperis longi Fructus.	Piper longum. *Fructus immaturus, siccatus.*
Piperis nigri Baccæ.	Piper nigrum. *Baccæ.*
Pix arida.	Pinus Abies. *Resina præparata.*
Pix liquida.	Pinus sylvestris. *Resina præparata liquida.*
Plumbi Subcarbonas.	Subcarbonas Plumbi.
Plumbi Oxydum semivitreum.	
Porri Radix.	Allium Porrum. *Radix.*
Potassæ Nitras.	Nitras Potassæ purificata.
Potassæ Supertartras.	Supertartras Potassæ purificata.
Potassa impura.	Subcarbonas Potassæ impura.
Pruna.	Prunus domestica. *Drupæ siccatæ.*
Pterocarpi Lignum.	Pterocarpus santalinus. *Lignum.*

Pulegium.	Mentha Pulegium.
Pyrethri Radix.	Anthemis Pyrethrum. *Radix.*
Quassiæ Lignum.	Quassia excelsa. *Lignum.*
Quercûs Cortex.	Quercus pedunculata. *Cortex.*
Resina flava.	Pinus sylvestris. *Residuum postquam Oleum Terebinthinæ distillatum est.*
Resina nigra.	Pinus sylvestris. *Resina præparata solida.*
Rhamni Baccæ.	Rhamnus catharticus. *Baccæ.*
Rhei Radix.	Rheum palmatum. *Radix.*
Rhœados Petala.	Papaver Rhœas. *Petala.*
Ricini Oleum, et Semina.	Ricinus communis. *Oleum è Seminibus expressum, et Semina.*
Rosæ caninæ Pulpa.	Rosa canina. *Baccarum Pulpa expressa.*

Rosæ centifoliæ Petala.	Rosa centifolia. *Petala.*
Rosæ Gallicæ Petala.	Rosa Gallica. *Petala.*
Rosmarini Cacumina.	Rosmarinus officinalis. *Cacumina.*
Rubiæ Radix.	Rubia Tinctorum. *Radix.*
Rutæ Folia.	Ruta graveolens.
Sabinæ Folia.	Juniperus Sabina. *Folia.*
Saccharum. Saccharum purificatum.	Saccharum officinale. *Præparata è Succo expresso.*
Sagapenum.	*Plantæ nondum descriptæ Gummi-resina.*
Salicis Cortex.	Salix Caprea. *Cortex.*
Sambuci Flores.	Sambucus nigrà. *Flores.*
Sapo durus.	Sapo ex Olivæ Oleo et Sodâ confectus (Hispanicus).
Sapo mollis	Sapo ex Oleo et Potassâ confectus.

Sarsaparillæ Radix.	Smilax Sarsaparilla. *Radix.*
Sassafras Lignum, et Radix.	Laurus Sassafras. *Lignum, et Radix.*
Scammoneæ Gummi-resina.	Convolvulus Scammonea. *Gummi-resina.*
Scillæ Radix.	Scilla maritima. *Radix.*
Senegæ Radix.	Polygala Senega. *Radix.*
Sennæ Folia.	Cassia Senna. *Folia.*
Serpentariæ Radix.	Aristolochia Serpentaria. *Radix.*
Sevum.	Ovis Aries. *Sevum.*
Simaroubæ Cortex.	Quassia Simarouba. *Cortex.*
Sinapis Semina.	Sinapis nigra. *Semina.*
Sodæ Murias.	Murias Sodæ.
Sodæ Subboras.	Subboras Sodæ.
Sodæ Sulphas.	Sulphas Sodæ.
Soda impura.	Subcarbonas Sodæ impura.

Spartii Cacumina.	Spartium scoparium. *Cacumina.*
Spigeliæ Radix.	Spigelia Marilandica. *Radix.*
Spiritus rectificatus. Hujus pondus specificum est ad pondus Aquæ distillatæ ut .835 ad 1.000.	
Spiritus tenuior. Hujus pondus specificum est ad pondus Aquæ distillatæ ut .930 ad 1.000.	
Spongia.	Spongia officinalis.
Stannum.	Stanni Limatura.
Staphisagriæ Semina.	Delphinium Staphisagria. *Semina.*
Styracis Balsamum.	Styrax officinale. *Balsamum.*
Succinum.	
Sulphur.	
Sulphur sublimatum.	

Tabaci Folia.	Nicotiana Tabacum. *Folia siccata (Virginiana).*
Tamarindi Pulpa.	Tamarindus Indica. *Leguminis Pulpa.*
Taraxaci Radix.	Leontodon Taraxacum. *Radix.*
Tartarum.	Potassæ Supertartras impura.
Terebinthina Canadensis.	Pinus Balsamea. *Resina liquida.*
Terebinthina Chia.	Pistacia Terebinthus. *Resina liquida.*
Terebinthina vulgaris. Terebinthinæ Oleum.	Pinus sylvestris. *Resina liquida, et Oleum inde distillatum.*
Testæ.	Ostrea edulis. *Testæ.*
Tormentillæ Radix.	Tormentilla officinalis. SMITH, *Flor. Brit.* *Radix.*
Toxicodendri Folia.	Rhus Toxicodendron. *Folia.*

Tragacantha.	Astragalus verus. Olivier, *Voy. dans l'Empire Ottom.* *Gummi.*
Tussilago.	Tussilago Farfara.
Valerianæ Radix.	Valeriana officinalis (sylvestris). *Radix.*
Veratri Radix.	Veratrum album. *Radix.*
Vinum.	Vinum album Hispanicum, Anglicè *Sherry.*
Ulmi Cortex.	Ulmus campestris. *Liber.*
Uvæ passæ.	Vitis vinifera. *Baccæ præparatæ.*
Uvæ Ursi Folia.	Arbutus Uva Ursi. *Folia.*
Zincum.	Zincum.
Zingiberis Radix.	Zingiber officinale. Roscoe, *in Act. Soc. Linn.* *Radix.*

PRÆPARATA ET COMPOSITA.

ACIDA.

ACIDUM ACETICUM.

℞ Aceti congium;

Distillet Acidum aceticum, balneo arenæ, ex retortâ vitreâ in receptaculum vitreum et frigefactum; tum, primo octario rejecto, octarios sex proximè distillatos serva.

ACIDUM BENZÖICUM.

℞ Benzöini libram cum semisse,
Calcis recentis uncias quatuor,
Aquæ congium cum semisse,
Acidi muriatici fluiduncias quatuor;

Tere Benzöinum cum Calce; dein per ho-

ram dimidiam in Aquæ congio coque, dum spathâ assiduè movetur, et liquorem refrigeratum effunde. Quod reliquum est iterum coque in Aquæ octariis quatuor, et liquorem ut anteà effunde. Deinde liquores inter se mistos decoque ad dimidium; tum per chartam cola, et instilla gradatim Acidum muriaticum, donec nihil amplius demittatur. Denique, effuso liquore, pulverem leni calore exsicca, et in vas idoneum super arenam positum immitte; tum lento igne sublima Acidum benzöicum.

ACIDUM CITRICUM.

℞ Limonum Succi octarium,
Cretæ præparatæ unciam, vel quantum satis sit ad Succum saturandum,
Acidi sulphurici diluti fluiduncias novem;

Succo Limonum fervefacto Cretam paulatim adjice, et misce; tum liquorem effunde. Citratem Calcis, quæ remanet, aquâ tepidâ sæpius renovatâ ablue; dein sicca. Tum pulveri siccato superinfunde Acidum sulphuricum dilutum, et coque per sextam horæ partem, per linteum fortiter exprime, et per

chartam cola. Liquorem qui transierit leni calore consume, adeò ut, dum frigescit, fiant crystalli.

Crystallos, ut puræ sint, iterum et tertiò in aquâ liqua, eamque toties cola, decoque, et sepone.

ACIDUM MURIATICUM.

℞ Sodæ Muriatis exsiccatæ libras duas,
Acidi sulphurici *pondere* uncias viginti,
Aquæ distillatæ octarium cum semisse;

Acidum cum Aquæ octario dimidio prius in retortâ vitreâ misce, et his, ubi refrixerint, Sodæ Muriatem adjice. Aquæ quod reliquum est in receptaculum infunde; tum, retortâ aptatâ, in hanc aquam transeat Acidum muriaticum distillatum ex balneo arenæ, calore gradatim aucto, donec retorta rubescat.

Acidi muriatici pondus specificum est ad Aquæ distillatæ pondus specificum, ut 1.160 ad 1.000.

Si in ejus fluidunciam, aquâ dilutam, frus-

tulum Lapidis calcarei injiciatur, grana ducenta et viginti liquari debent.

ACIDUM NITRICUM.

℞ Potassæ Nitratis exsiccatæ,
Acidi sulphurici, singulorum *pondere* libras duas;

Misce in retortâ vitreâ; tum balneo arenæ distillet Acidum nitricum, donec vapor ruber prodeat. Dein, adjectâ insuper Potassæ Nitratis exsiccatæ unciâ, iterum eodem modo Acidum distillet.

Acidi nitrici pondus specificum est ad pondus specificum Aquæ distillatæ, ut 1.500 ad 1.000.

Si in ejus fluidunciam, Aquâ dilutam, frustulum Lapidis calcarei immittatur, liquari debet uncia.

ACIDUM NITRICUM DILUTUM.

℞ Acidi nitrici fluidunciam,
Aquæ distillatæ fluiduncias novem;

Misce.

ACIDUM SULPHURICUM DILUTUM.

℞ Acidi sulphurici fluidunciam cum semisse,
Aquæ distillatæ fluiduncias quatuordecim cum semisse;

Acidum Aquæ paulatim adjice; tum misce.

ALKALIA, ET EORUM SALES.

AMMONIÆ SUBCARBONAS.

℞ Ammoniæ Muriatis libram,
Cretæ præparatæ exsiccatæ libram cum semisse;

Separatim in pulverem tere; tum misce, et sublima calore paulatim aucto, donec retorta rubescat.

LIQUOR AMMONIÆ.

℞ Ammoniæ Muriatis uncias octo,
Calcis recentis uncias sex,
Aquæ octarios quatuor;

Calci superinfunde Aquæ octarium; tum vas contege et sepone per horam; dein Ammoniæ Muriatem et reliquam Aquam, prius

fervefactam adjice, et vas iterum contege; liquorem postquam refrixerit cola; tum distillent Liquoris Ammoniæ fluidunciæ duodecim.

Liquoris Ammoniæ pondus specificum est ad pondus Aquæ distillatæ ut 0.960 ad 1.000.

LIQUOR AMMONIÆ ACETATIS.

℞ Ammoniæ Subcarbonatis uncias duas,
Acidi acetici octarios quatuor;

Ammoniæ Subcarbonati adjice Acidum, donec bullulæ non amplius excitentur, et misce.

LIQUOR AMMONIÆ SUBCARBONATIS.

℞ Ammoniæ Subcarbonatis uncias quatuor,
Aquæ distillatæ octarium;

Liqua Ammoniæ Subcarbonatem in Aquâ, et per chartam cola.

LIQUOR POTASSÆ.

℞ Potassæ Subcarbonatis libram,
Calcis recentis libram dimidiam,
Aquæ distillatæ ferventis congium;

Liqua Potassam in Aquæ octariis duobus. Calci adjice Aquæ quod reliquum est. Liquores calentes inter se misce; tum sepone in vase clauso, et, postquam refrixerint, per pannum gossipinum cola.

Si Acidum dilutum quodlibet instillatum bullulas excitet, plus Calcis adjicere oportebit, et iterum colare.

Hujus Liquoris octarius pendere debet uncias sedecim.

LIQUOR POTASSÆ SUBCARBONATIS.

℞ Potassæ Subcarbonatis libram,
Aquæ distillatæ fluiduncias duodecim;

Liqua Potassæ Subcarbonatem in Aquâ, et per chartam cola.

POTASSA CUM CALCE.

℞ Liquoris Potassæ octarios tres,
Calcis recentis libram;

Decoque Liquorem Potassæ ad octarium; dein adjice Calcem, affusâ aquâ resolutam, et diligenter misce.

POTASSA FUSA.

℞ Liquoris Potassæ congium;

Aquam in vase ferreo nitido ad ignem consume, donec, ebullitione finitâ, Potassa liquefiat: hanc super laminam ferream effunde in formas idoneas.

POTASSÆ ACETAS.

℞ Potassæ Subcarbonatis libram cum semisse,
Acidi acetici congium;

Simul misce in vase vitreo capaci, et, parte dimidiâ ad ignem consumtâ, insuper instilla

paulatim Acidi acetici quod satis sit ad plenam saturationem. Liquor iterum ad dimidium vaporet, et coletur; tum balneo aquoso consumatur, sic ut, ab igne remotus, in crystallos abeat.

POTASSÆ CARBONAS.

℞ Potassæ Subcarbonatis ex Tartaro libram,
Ammoniæ Subcarbonatis uncias tres,
Aquæ distillatæ octarium;

Potassæ in Aquâ liquatæ Ammoniæ Subcarbonatem adjice; tum balneo arenæ caloris gradum 180^{m}. adhibe per horas tres, vel donec expulsa fuerit Ammonia; denique sepone, ut fiant crystalli. Simili modo consumatur liquor reliquus, ut, ubi sepusueris, iterum prodeant crystalli.

POTASSÆ SUBCARBONAS.

℞ Potassæ impuræ contritæ libras tres,
Aquæ ferventis octarios tres cum semisse;

Liqua Potassam in Aquâ, et cola; tum in vas ferreum nitidum effunde, et aquam lento

igne consume, ut spissescat liquor; dein, igne subducto, spathâ ferreâ assiduè move, donec Sal in grana parvula abeat.

Potassæ Subcarbonas purior præparari potest, eodem modo, ex Tartaro, quod priùs ustum fuerit, donec cinerei sit coloris.

POTASSÆ SULPHAS.

℞ Salis qui restat post distillationem Acidi nitrici libras duas,
Aquæ ferventis congios duos;

Misce, ut liquetur Sal; tum adjice Potassæ Subcarbonatis quod satis sit ad Acidum saturandum. Dein coque, donec pellicula supernatet, et, ubi colaveris, sepone, ut fiant crystalli. Has, effusâ aquâ, super chartam bibulam exsicca.

POTASSÆ SUPERSULPHAS.

℞ Salis qui restat post distillationem Acidi nitrici libras duas,
Aquæ ferventis octarios quatuor;

Misce, ut liquetur Sal, et cola. Dein coque ad dimidium, et sepone, ut fiant crystalli. Has, effusâ aquâ, super chartam bibulam exsicca.

POTASSÆ TARTRAS.

℞ Potassæ Subcarbonatis uncias sedecim,
Potassæ Supertartratis libras tres,
Aquæ ferventis congium;

Potassæ Subcarbonatem in Aquâ liqua; tum adjice Potassæ Supertartratem in pulverem tritam, donec bullulæ non amplius excitentur. Liquorem per chartam cola; dein coque donec pellicula supernatet, et sepone, ut fiant crystalli. Has, effusâ aquâ, super chartam bibulam exsicca.

SODA TARTARIZATA.

℞ Sodæ Subcarbonatis uncias viginti,
Potassæ Supertartratis contritæ libras duas,
Aquæ ferventis octarios decem;

Sodæ Subcarbonatem in Aquâ liqua, et adjice paulatim Potassæ Supertartratem. Li-

quorem per chartam cola ; tum coque, donec pellicula supernatet, et sepone, ut fiant crystalli. Has, effusâ aquâ, super chartam bibulam exsicca.

SODÆ CARBONAS.

℞ Sodæ Subcarbonatis libram,
Ammoniæ Subcarbonatis uncias tres,
Aquæ distillatæ octarium ;

Sodæ Subcarbonati in aquâ liquatæ Ammoniam adjice ; tum balneo arenæ caloris gradum 180^{m}. adhibe per horas tres, vel donec Ammonia expulsa fuerit. Denique sepone, ut fiant crystalli. Simili modo consumatur liquor reliquus, et seponatur, ut iterum prodeant crystalli.

SODÆ SUBCARBONAS.

℞ Sodæ impuræ in pulverem tritæ libram,
Aquæ distillatæ ferventis octarios quatuor;

Coque Sodam in Aquâ per horam dimidiam, et cola. Hæc vaporet ad octarios duos, et seponatur, ut fiant crystalli. Liquorem superstitem rejice.

SODÆ SUBCARBONAS EXSICCATA.

℞ Sodæ Subcarbonatis libram ;

Sodæ Subcarbonati, in vase ferreo nitido, calorem ferventem adhibe, donec penitus exsiccetur ; eamque simul spathâ ferreâ assiduè move. Denique in pulverem tere.

SODÆ SULPHAS.

℞ Salis qui restat post distillationem Acidi muriatici libras duas,
Aquæ ferventis octarios duos cum semisse ;

Liqua Salem in Aquâ ; tum adjice paulatim Sodæ Subcarbonatis quod satis sit ad Acidum saturandum. Decoque, donec pellicula appareat, et, ubi colaveris, sepone, ut fiant crystalli. Has, effusâ aquâ, super chartam bibulam exsicca.

TERRÆ, ET EARUM SALES.

ALUMEN EXSICCATUM.

Alumen in vase fictili ad ignem liquescat; tum augeatur ignis, donec ebullitio cessaverit.

CALCIS MURIAS.

℞ Salis qui restat post distillationem Ammoniæ Subcarbonatis libras duas,
Aquæ octarium;

Misce et per chartam cola; vaporet liquor donec Sal exsiccetur. Hunc in vase accuratè obturato serva.

CALX.

℞ Lapidis calcarei libram;

In frustula contunde, et in crucibulo igne

acerrimo ure per horam, vel donec Acidum carbonicum penitus expulsum fuerit, adeò ut Acidum aceticum adjectum nullas bullulas excitet.

Eodem modo fit Calx è Testis, postquam aquâ fervente lotæ fuerint, et sordibus purgatæ.

CRETA PRÆPARATA.

℞ Cretæ libram;

Cretæ adjice Aquæ paululum, et tere, ut fiat pulvis subtilis. Hunc in vas amplum aquâ plenum conjice; tum agita, et, brevi morâ interpositâ, in vas aliud aquam adhuc turbidam supernatantem transmitte, et sepone, ut subsidat pulvis; denique, effusâ aquâ, pulverem exsicca.

LIQUOR ALUMINIS COMPOSITUS.

℞ Aluminis,
Zinci Sulphatis, singulorum unciam dimidiam,
Aquæ ferventis octarios duos;

Alumen et Zinci Sulphatem in Aquâ simul liqua; dein per chartam cola.

LIQUOR CALCIS.

℞ Calcis selibram,
Aquæ distillatæ ferventis octarios duodecim;

Calci Aquam affunde, et simul agita; tum protinus vas contege, et sepone per horas tres; dein liquorem cum Calce superstite in vasis vitreis obturatis serva, et, ubi utendum est, ex limpido liquore sume.

LIQUOR CALCIS MURIATIS.

℞ Calcis Muriatis uncias duas,
Aquæ distillatæ fluiduncias tres;

Calcis Muriatem in Aqua liqua; tum per chartam cola.

MAGNESIA.

℞ Magnesiæ Carbonatis uncias quatuor;

Igne acerrimo ure per horas duas, vel donec Acidum aceticum instillatum nullas bullulas excitet.

MAGNESIÆ CARBONAS.

℞ Magnesiæ Sulphatis libram,
Potassæ Subcarbonatis uncias novem,
Aquæ congios tres;

Potassæ Subcarbonatem in Aquæ octariis tribus, Magnesiæ Sulphatem in Aquæ octariis quinque, separatim liqua, et cola; dein liquori Magnesiæ Sulphatis reliquam Aquam adjice, et coque, eique, dum ebullit, liquorem priorem admisce, spathâ assiduè movens; tum per linteum cola; denique pulverem, affusâ sæpius aquâ fervente, ablue, et calore gradûs ducentesimi super chartam bibulam exsicca.

METALLA, ET EORUM SALES.

PRÆPARATA EX ANTIMONIO.

ANTIMONII OXYDUM.

℞ Antimonii tartarizati unciam,
Ammoniæ Subcarbonatis drachmas duas,
Aquæ distillatæ quantum satis sit;

Sales separatim in aquâ liqua; dein liquores misce, et coque donec demittatur Antimonii Oxydum. Hoc affusa aqua ablue, et exsicca.

ANTIMONII SULPHURETUM PRÆCIPITATUM.

℞ Antimonii Sulphureti contriti libras duas,
Liquoris Potassæ octarios quatuor,
Aquæ distillatæ octarios tres;

Misce, et coque igne lento per horas tres, assiduè movens, adjectâ subinde aquâ distillatâ, adeò ut eandem mensuram semper impleat. Liquorem per linteum duplicatum protinus cola, eique adhuc calenti instilla paulatim Acidi sulphurici diluti quantum satis sit ad pulverem dejiciendum; tum aquâ calidâ Potassæ Sulphatem ablue, Antimonii Sulphuretum præcipitatum exsicca, et in pulverem subtilem tere.

ANTIMONIUM TARTARIZATUM.

℞ Antimonii Sulphureti contriti uncias duas,
Potassæ Nitratis unciam,
Potassæ Supertartratis uncias duas,
Acidi sulphurici *pondere* uncias duas,
Aquæ distillatæ octarium cum semisse;

Misce Acidum cum Aquæ octario dimidio in vase vitreo idoneo, et calefac balneo arenæ. Cum modicè incaluerint, adjice paulatim Sulphuretum et Nitratem inter se mista; tum cola, et coque, donec omnis humor consumtus sit. Reliquum Aquâ distillatâ lava, donec saporis expers sit, et adhuc humidum cum Potassæ Supertartrate misce, et conjice in Aquæ dis-

tillatæ octarium; denique liquorem decoque, et sepone, ut fiant crystalli.

LIQUOR ANTIMONII TARTARIZATI.

℞ Antimonii tartarizati scrupulum,
Aquæ distillatæ ferventis fluiduncias quatuor,
Vini fluiduncias sex;

Antimonium tartarizatum in Aquâ distillatâ fervente liqua; tum Vinum adjice.

PULVIS ANTIMONIALIS.

℞ Antimonii Sulphureti contriti libram,
Cornuum rasorum libras duas;

Misce, et conjice in ollam ferream latam igne candentem, assiduè movens, donec coloris cinerei fuerint. Exempta in pulverem tere, et inde crucibulo loricato, quocum aliud crucibulum inversum, cui parvum sit in fundo foramen, luto conjungendum est. Tum ignem subministra, et paulatim auge, ut candeat per horas duas. Residuum tere, ut fiat pulvis subtilissimus.

PRÆPARATUM EX ARGENTO.

ARGENTI NITRAS.

℞ Argenti unciam,
Acidi nitrici fluidunciam,
Aquæ distillatæ fluiduncias duas;

Acidum nitricum Aquâ misce, et in his Argentum balneo arenæ liqua. Dein calorem paulatim auge, ut siccetur Argenti Nitras. Hanc in crucibulo, lento igne, liquefac, donec, expulsâ aquâ, cessaverit ebullitio; tum statim effunde in formas idoneas.

PRÆPARATA EX ARSENICO.

ARSENICI OXYDUM SUBLIMATUM.

Arsenici Oxydum in pulverem tere; tum conjice in crucibulum, et, admoto igne, in crucibulum aliud priori superimpositum sublima.

LIQUOR ARSENICALIS.

℞ Arsenici Oxydi sublimati, in pulverem subtilissimum triti,
Potassæ Subcarbonatis ex Tartaro, singulorum grana sexaginta quatuor,
Aquæ distillatæ octarium;

Coque simul in vase vitreo, donec Arsenicum omne liquetur. Liquori frigefacto adjice
Spiritûs Lavandulæ compositi fluidrachmas quatuor;
Denique adjice insuper Aquæ distillatæ quantum satis sit, ut mensuram octarii accuratè impleat.

PRÆPARATA E CUPRO.

CUPRUM AMMONIATUM.

℞ Cupri Sulphatis unciam dimidiam,
Ammoniæ Subcarbonatis drachmas sex;

Tere simul in mortario vitreo, donec cessaverit ebullitio; deinde Cuprum ammoniatum, chartâ bibulâ involutum, leni calore exsicca.

LIQUOR CUPRI AMMONIATI.

℞ Cupri ammoniati drachmam,
Aquæ distillatæ octarium;

Liqua Cuprum ammoniatum in Aquâ, et per chartam cola.

PRÆPARATA E FERRO.

FERRUM AMMONIATUM.

℞ Ferri Subcarbonatis,
Ammoniæ Muriatis, singulorum libram;

Diligenter misce; tum, igne acri subjecto, protinùs sublima; denique in pulverem tere.

FERRI SUBCARBONAS.

℞ Ferri Sulphatis uncias octo,
Sodæ Subcarbonatis uncias sex,
Aquæ ferventis congium;

Ferri Sulphatem et Sodæ Subcarbonatem separatim liqua in Aquæ octariis quatuor; tum liquores inter se misce, et sepone, ut pulvis subsidat; deinde, effuso liquore supernatante, Ferri Subcarbonatem aquâ calidâ ablue, et chartâ bibulâ involutam leni calore exsicca.

FERRI SULPHAS.

℞ Ferri,
Acidi sulphurici, singulorum *pondere* uncias octo,
Aquæ octarios quatuor;

Acidum sulphuricum cum Aquâ in vase vitreo misce, hisque adjice Ferrum; tum, ubi bullulæ exire cessaverint, liquorem per chartam cola, eumque ad ignem consume, adeò ut, dum frigescit, fiant crystalli. Has, effusâ aquâ, super chartam bibulam exsicca.

FERRUM TARTARIZATUM.

℞ Ferri libram,
Potassæ Supertartratis contritæ libras duas,
Aquæ octarium;

Simul tere, et in vase vitreo patulo per dies octo aëri expone; dein balneo arenæ sicca, et in pulverem subtilissimum tere. Hunc pulverem, adjecto iterum Aquæ octario, per dies octo sepone; tum sicca, et in pulverem tere.

LIQUOR FERRI ALKALINI.

℞ Ferri drachmas duas cum semisse,
Acidi nitrici fluiduncias duas,
Aquæ distillatæ fluiduncias sex,
Liquoris Potassæ Subcarbonatis fluiduncias sex;

Ferro superinfunde Acidum et Aquam inter se mista; tum, ubi bullulæ exire cessaverint, liquorem adhuc acidum effunde. Hunc, paulatim et ex intervallis, Liquori Potassæ Subcarbonatis adjice, subindè agitans, donec, facto jam colore fusco-rubicundo, bullulæ nullæ ampliùs excitentur. Denique sepone per horas sex, et liquorem effunde.

TINCTURA FERRI AMMONIATI.

℞ Ferri ammoniati uncias quatuor,
Spiritûs tenuioris octarium;

Macera, et cola.

TINCTURA FERRI MURIATIS.

℞ Ferri Subcarbonatis libram dimidiam,
Acidi muriatici octarium,
Spiritûs rectificati octarios tres;

Ferri Subcarbonati superinfunde Acidum in vase vitreo, et per triduum subindè agita. Sepone, ut fæces, si quæ sint, subsidant; dein liquorem effunde, eique adjice Spiritum.

VINUM FERRI.

℞ Ferri Ramentorum uncias duas,
Vini octarios duos;

Misce, et sepone per mensem, subindè agitans; tum per chartam cola.

PRÆPARATA EX HYDRARGYRO.

HYDRARGYRI NITRICO-OXYDUM.

℞ Hydrargyri purificati *pondere* libras tres,
Acidi nitrici *pondere* libram cum semisse,
Aquæ distillatæ octarios duos;

Misce in vase vitreo, et coque, donec liquetur Hydrargyrum, et, Aquâ consumptâ, materia alba restet. Hanc tere in pulverem, et in vas aliud quàm minimè profundum conjice; tum ignem lenem adhibe, eumque paulatim auge, donec vapor ruber prodire cessaverit.

HYDRARGYRI OXYDUM CINEREUM.

℞ Hydrargyri Submuriatis unciam,
Liquoris Calcis congium;

Hydrargyri Submuriatem in Liquore Calcis coque, assiduè movens, donec Oxydum Hydrargyri cinereum subsidat. Hoc Aquâ distillatâ lava; deinde exsicca.

HYDRARGYRI OXYDUM RUBRUM.

℞ Hydrargyri purificati *pondere* libram;

Immitte Hydrargyrum in vas vitreum, cui os angustum, et fundus latior sit. Vasi huic aperto calorem gradûs sexcentesimi adhibe, donec Hydrargyrum in squamas rubras abierit; dein in pulverem subtilissimum tere.

HYDRARGYRI OXYMURIAS.

℞ Hydrargyri purificati *pondere* libras duas,
Acidi sulphurici *pondere* uncias triginta,
Sodæ Muriatis exsiccatæ libras quatuor;

Hydrargyrum cum Acido sulphurico in vase vitreo coque, donec Hydrargyri Sulphas exsiccata fuerit; hanc, ubi refrixerit, cum Sodæ Muriate in mortario fictili contere; tum ex cucurbitâ vitreâ, calore sensim aucto, sublima.

HYDRARGYRI SUBMURIAS.

℞ Hydrargyri Oxymuriatis libram,
Hydrargyri purificati *pondere* uncias novem;

Tere simul, donec globuli non amplius conspiciantur; tum sublima; deinde sublimatum exime, idque bis iterum et tere et sublima. Denique fiat pulvis subtilissimus, eodem modo quo Cretam præparari præcepimus.

HYDRARGYRI SULPHURETUM NIGRUM.

℞ Hydrargyri purificati *pondere* libram,
Sulphuris sublimati libram;

Tere simul, donec globuli non amplius conspiciantur.

HYDRARGYRI SULPHURETUM RUBRUM.

℞ Hydrargyri purificati *pondere* uncias quadraginta,
Sulphuris sublimati uncias octo;

Sulphuri ad ignem liquefacto Hydrargyrum admisce, et, quamprimùm intumescat massa, vas ab igne remove, et fortiter tege, ne fiat inflammatio; deinde in pulverem tere, et sublima.

HYDRARGYRUM CUM CRETA.

℞ Hydrargyri purificati *pondere* uncias tres,
Cretæ præparatæ uncias quinque;

Tere simul, donec globuli non amplius conspiciantur.

HYDRARGYRUM PRÆCIPITATUM ALBUM.

℞ Hydrargyri Oxymuriatis libram dimidiam,
Ammoniæ Muriatis uncias quatuor,
Liquoris Potassæ Subcarbonatis octarium dimidium,
Aquæ distillatæ octarios quatuor;

Primò Ammoniæ Muriatem, dein Hydrargyri Oxymuriatem, in Aquâ distillatâ liqua, et his adjice Liquorem Potassæ Subcarbonatis. Pulverem demissum lava, donec saporis expers fuerit; tum exsicca.

HYDRARGYRUM PURIFICATUM.

℞ Hydrargyri *pondere* libras sex,
Ferri Ramentorum libram ;

Tere simul ; tum, igne subjecto, ex retortâ ferreâ distillet Hydrargyrum.

LIQUOR HYDRARGYRI OXYMURIATIS.

℞ Hydrargyri Oxymuriatis grana octo,
Aquæ distillatæ fluiduncias quindecim,
Spiritûs rectificati fluidunciam ;

Hydrargyri Oxymuriatem in Aquâ liqua, eique adjice Spiritum.

PRÆPARATA E PLUMBO.

LIQUOR PLUMBI SUBACETATIS.

℞ Plumbi Oxydi semivitrei libras duas,
Acidi acetici congium;

Misce, et decoque ad octarios sex, assiduè movens; dein sepone, ut subsidant fæces, et cola.

LIQUOR PLUMBI SUBACETATIS DILUTUS.

℞ Liquoris Plumbi Subacetatis fluidrachmam,
Aquæ distillatæ octarium,
Spiritûs tenuioris fluidrachmam;

Misce.

PLUMBI SUPERACETAS.

℞ Plumbi Carbonatis libram;
Acidi acetici congium cum semisse;

Coque Plumbi Carbonatem cum Acido, donec hoc saturetur; deinde per chartam cola, et, aquâ consumptâ donec pellicula subnascatur, sepone, ut fiant crystalli. Has, effusâ aquâ, super chartam bibulam exsicca.

PRÆPARATA E ZINCO.

CALAMINA PRÆPARATA.

Calaminam ure; tum contere. Deinde fiat pulvis subtilissimus eodem modo, quo Cretam præparari præcepimus.

ZINCI OXYDUM.

Zinci frustula crucibulo candenti, capaci, alto, et inclinato, paulatim injice, crucibulo alio superimposito, ita ut Zincum aëri pateat, et spathâ ferreâ sæpè moveri possit; Oxydum quod subinde nascatur statim exime; tum partem ejus albam et leviorem per cribrum transmitte. Huic denique aquam superinfunde, ut fiat pulvis subtilissimus eodem modo, quo Cretam præparari præcepimus.

ZINCI SULPHAS.

℞ Zinci in frustula fracti uncias tres,
Acidi sulphurici *pondere* uncias quinque,
Aquæ octarios quatuor;

Misce in vase vitreo, et, finitâ effervescentiâ, liquorem per chartam cola; tum decoque, donec pellicula subnascatur, et sepone, ut fiant crystalli.

SULPHUREA.

OLEUM SULPHURATUM.

℞ Sulphuris loti uncias duas,
Olivæ Olei octarium;

Oleo in vase ferreo peramplo calefacto Sulphur paulatim injice, et spathâ assidue move, donec cöierint.

POTASSÆ SULPHURETUM.

℞ Sulphuris loti unciam,
Potassæ Subcarbonatis uncias duas;

Tere simul, et in crucibulo clauso super ignem impone, donec cöierint.

SULPHUR LOTUM.

℞ Sulphuris sublimati libram;

Aquam ferventem superinfunde, ut Acidum, si quod sit, penitus abluatur; dein sicca.

SULPHUR PRÆCIPITATUM.

℞ Sulphuris sublimati libram,
Calcis recentis libras duas,
Aquæ congios quatuor;

Sulphur et Calcem in Aquâ simul coque; tum liquorem per chartam cola, eique instilla Acidi muriatici quantum satis sit ut demittatur Sulphur. Denique hoc, superinfusâ sæpius aquâ, lava, donec insipidum fiat.

VEGETABILIA.

Decerpenda sunt Vegetabilia ex locis et solo, ubi sponte nascuntur, tempestate siccâ, nec imbribus, nec rore madefacta; quotannis colligenda sunt, et quæ diutiùs servata fuerint rejicienda.

Radices pleræque effodiendæ sunt antequam caules aut folia exserant.

Cortices colligi debent eâ tempestate, quâ facillimè a ligno separari possint.

Folia decerpenda sunt postquam flores expassi fuerint; et antequam semina maturescant.

Flores legendi sunt nuper explicati.

Semina colligenda sunt jam matura, et antequam è planta decidere inceperint. Hæc in propriis pericarpiis servari debent.

VEGETABILIUM PRÆPARATIO.

Vegetabilia, brevi postquam decerpta fuerint, illis exceptis quæ recentia esse oportet, leviter strata, quàm citissimè exsicca, calore tam leni ut color non mutetur; dein in locis, vel vasis aptis, intercluso luminis et humoris accessu, conserva.

Radices, quas recentes servari præcepimus, in arenâ siccâ reconde. Scillæ Radicem ante exsiccationem, tunicis aridis direptis, transversim in laminas tenues seca.

Fructus pulposos, si immaturi sint, vel maturi et sicci, sepone in loco humido, ut mollescant; dein pulpas per cribrum setaceum exprime; postea coque lento igne, crebrò movens; denique aquam balneo aquoso consume, donec pulpæ fiant idoneæ crassitudinis.

Cassiæ Lomentis contusis aquam ferventem superinfunde, ut pulpa eluatur, quam per cribrum grandioribus foraminibus primùm exprime, postea per setaceum; deinde

aquam balneo aquoso consume, donec pulpa idoneam crassitudinem habeat.

Fructuum maturorum et recentium pulpam vel succum per cribrum exprime, nullâ coctione adhibitâ.

GUMMI-RESINÆ.

Opium a rebus alienis, præsertim externis, quàm diligentissimè separa. Servetur Opium molle, quod ad pilulas fingendas aptum sit, et durum, quod balneo aquoso ita exsiccatum fuerit, ut in pulverem teri possit.

Gummi-Resinæ pro optimis habendæ sunt, quæ electæ fuerint adeo sinceræ, ut nullâ purificatione opus sit. Quod si minus puræ esse videantur, coque in aquâ, donec mollescant, et prelo exprime per pannum cannabinum; dein sepone, ut pars resinosa subsidat. Liquorem supernatantem effusam balneo aquoso consume, adjectâ sub finem parte resinosâ, et cum parte gummosâ in unum coactâ.

Gummi-Resinæ facile liquescentes purificari possunt, injiciendo in vesicam bubulam, tenendoque in Aquâ fervente, donec adeò molles fiant, ut per pannum cannabinum à sordibus prelo separari possint.

Styracis Balsamum in Spiritu rectificato liqua, et cola; tum leni calore distillet Spiritus, donec idonea crassitudo Balsamo fiat.

OLEA EXPRESSA.

OLEUM AMYGDALARUM.

Amygdalas vel dulces vel amaras, in aquâ frigidâ macera per horas duodecim, et contunde; deinde, nullo calore adhibito, exprime Oleum.

OLEUM LINI.

Lini usitatissimi Semina contunde; deinde, nullo calore adhibito, exprime Oleum.

OLEUM RICINI.

Ricini Semina, demtis pelliculis, contunde; deinde, nullo calore adhibito, exprime Oleum.

OLEA DISTILLATA.

OLEUM ANISI,
ANTHEMIDIS,
CARUI,
JUNIPERI,
LAVANDULÆ,
MENTHÆ PIPERITÆ,
MENTHÆ VIRIDIS,
ORIGANI,
PIMENTÆ,
PULEGII,
ROSMARINI.

Anisi et Carui Semina, Anthemidis et Lavandulæ Flores, Juniperi et Pimentæ Baccæ, Rosmarini Cacumina, et reliquorum Herbæ exsiccatæ, adhibenda sunt.

Horum quodvis in alembicum immitte, et Aquæ adjice quantum id contegat; tum in vas frigidarium amplum distillet Oleum.

Aqua, quæ inter distillandum cum Oleis Carui, Menthæ piperitæ, et viridis, Pimentæ, et Pulegii prodit, in usum servetur.

OLEUM SUCCINI.

In alembicum immitte Succinum, ut distillent balneo arenæ, calore paulatim aucto, Liquor acidus, Oleum, et Sal oleo inquinatus. Dein, iterum et tertiò Oleum distillet.

OLEUM TEREBINTHINÆ RECTIFICATUM.

℞ Olei Terebinthinæ octarium,
Aquæ octarios quatuor;

Distillet Oleum.

AQUÆ DISTILLATÆ.

Aquæ ex herbis exsiccatis distillent, nisi aliter præscriptum sit, quoniam recentes omni anni tempore comparari non possunt. Ubi recentes adhibentur, pondere duplo utendum est.

Singulis Aquarum congiis adjice Spiritûs tenuioris fluiduncias quinque, ut integræ conserventur.

AQUA DISTILLATA.

℞ Aquæ congios decem;

Distillent primùm octarii quatuor, quibus abjectis, distillent congii quatuor. Aquam distillatam in lagenâ vitreâ serva.

AQUA ANETHI.

℞ Anethi Seminum contusorum libram;

His affunde tantum Aquæ, ut, post distillationem, supersit quod satis est ad prohibendum empyreuma. Distillet congius.

AQUA CARUI.

℞ Carui Seminum contusorum libram;

His affunde tantum Aquæ, ut, post distillationem, supersit quod satis est ad prohibendum empyreuma. Distillet congius.

AQUA CINNAMOMI.[1]

℞ Cinnamomi Corticis contusi libram,
Aquæ octarium;

Macera Corticem in Aquâ per horas quatuor et viginti; tum adjice tantum Aquæ, ut, post distillationem, supersit quod satis est ad prohibendum empyreuma. Distillet congius.

AQUA FŒNICULI.

℞ Fœniculi Seminum contusorum libram;

His affunde tantum Aquæ, ut, post distillationem, supersit quod satis est ad prohibendum empyreuma. Distillet congius.

AQUA MENTHÆ PIPERITÆ.

℞ Menthæ piperitæ libram cum semisse;

Huic affunde tantum Aquæ, ut, post distillationem, supersit quod satis est ad prohibendum empyreuma. Distillet congius.

AQUA MENTHÆ VIRIDIS.

℞ Menthæ viridis libram cum semisse;

Huic affunde tantum Aquæ, ut, post distillationem, supersit quod satis est ad prohibendum empyreuma. Distillet congius.

AQUA PIMENTÆ.

℞ Pimentæ Baccarum contusarum libram dimidiam,
Aquæ octarium;

Macera Baccas in Aquâ per horas viginti quatuor; tum adjice tantum Aquæ, ut, post distillationem, supersit quod satis est ad prohibendum empyreuma. Distillet congius.

AQUA PULEGII.

℞ Pulegii libram cum semisse;

Huic affunde tantum Aquæ, ut, post distillationem, supersit quod satis est ad prohibendum empyreuma. Distillet congius.

AQUA ROSÆ.

℞ Rosæ centifoliæ Petalorum libras octo;

His affunde tantum Aquæ, ut post distillationem, supersit quod satis est ad prohibendum empyreuma. Distillet congius.

INFUSA.

INFUSUM ANTHEMIDIS.

℞ Anthemidis Florum drachmas duas,
Aquæ ferventis octarium dimidium;

Macera per sextam horæ partem, in vase leviter clauso, et cola.

INFUSUM ARMORACIÆ COMPOSITUM.

℞ Armoraciæ Radicis recentis concisæ,
Sinapis Seminum contusorum, singulorum unciam,
Aquæ ferventis octarium;

Macera per horas duas, in vase leviter clauso, et cola; tum adjice
Spiritûs Armoraciæ compositi fluidunciam.

INFUSUM AURANTII COMPOSITUM.

℞ Aurantii Corticis exsiccati drachmas duas,
Limonum Corticis recentis drachmam,
Caryophyllorum contusorum drachmam dimidiam,
Aquæ ferventis octarium dimidium;

Macera per quartam horæ partem, in vase levitèr clauso, et cola.

INFUSUM CALUMBÆ.

℞ Calumbæ Radicis concisæ drachmam,
Aquæ ferventis octarium dimidium;

Macera per horas duas, in vase levitèr clauso, et cola.

INFUSUM CARYOPHYLLORUM.

℞ Caryophyllorum contusorum drachmam,
Aquæ ferventis octarium dimidium;

Macera per horas duas, in vase levitèr clauso, et cola.

INFUSUM CASCARILLÆ.

℞ Cascarillæ Corticis contusi unciam dimidiam,
Aquæ ferventis octarium dimidium;

Macera per horas duas in vase levitèr clauso, et cola.

INFUSUM CATECHU COMPOSITUM.

℞ Catechu Extracti drachmas duas cum semisse,
Cinnamomi Corticis contusi drachmam dimidiam,
Aquæ ferventis octarium dimidium;

Macera per horam in vase levitèr clauso, et cola.

INFUSUM CINCHONÆ.

℞ Cinchonæ lancifoliæ Corticis contusi unciam dimidiam,
Aquæ ferventis octarium dimidium;

Macera per horas duas in vase levitèr clauso, et cola.

INFUSUM CUSPARIÆ.

℞ Cuspariæ Corticis contusi drachmas duas,
Aquæ ferventis octarium dimidium;

Macera per horas duas in vase levitèr clauso, et cola.

INFUSUM DIGITALIS.

℞ Digitalis Foliorum exsiccatorum drachmam,
Aquæ ferventis octarium dimidium;

Macera per horas quatuor in vase levitèr clauso, et cola; tum adjice
Spiritûs Cinnamomi fluidunciam dimidiam.

INFUSUM GENTIANÆ COMPOSITUM.

℞ Gentianæ Radicis concisæ,
Aurantii Corticis exsiccati, singulorum drachmam,
Limonum Corticis recentis drachmas duas,
Aquæ ferventis fluiduncias duodecim;

Macera per horam in vase levitèr clauso, et cola.

INFUSUM LINI.

℞ Lini usitatissimi Seminum contusorum unciam,
Glycyrrhizæ Radicis concisæ unciam dimidiam,
Aquæ ferventis octarios duos;

Macera per horas quatuor, prope ignem, in vase levitèr clauso, et cola.

INFUSUM QUASSIÆ.

℞ Quassiæ Ligni concisi scrupulum,
Aquæ ferventis octarium dimidium;

Macera per horas duas in vase levitèr clauso, et cola.

INFUSUM RHEI.

℞ Rhei Radicis concisæ drachmam,
Aquæ ferventis octarium dimidium;

Macera per horas duas in vase levitèr clauso, et cola.

INFUSUM ROSÆ.

℞ Rosæ Gallicæ Petalorum exsiccatorum unciam dimidiam,
Aquæ ferventis octarios duos cum semisse,
Acidi sulphurici diluti fluidrachmas tres,
Sacchari purificati unciam cum semisse;

Aquam Rosæ Petalis superinfunde in vase vitreo; dein Acidum immisce, et macera per horam dimidiam. Denique liquorem cola, eique Saccharum adjice.

INFUSUM SENNÆ.

℞ Sennæ Foliorum unciam cum semisse,
Zingiberis Radicis concisæ drachmam,
Aquæ ferventis octarium;

Macera per horam in vase levitèr clauso, et liquorem cola.

INFUSUM SIMAROUBÆ.

℞ Simaroubæ Corticis contusi drachmam dimidiam,
Aquæ ferventis octarium dimidium ;

Macera per horas duas in vase levitèr clauso, et cola.

INFUSUM TABACI.

℞ Tabaci Foliorum drachmam,
Aquæ ferventis octarium ;

Macera per horam in vase levitèr clauso, et cola.

MUCILAGINES.

MUCILAGO ACACIÆ.

℞ Acaciæ Gummi contriti uncias quatuor,
Aquæ ferventis octarium dimidium;

Gummi cum Aquâ paulatim instillatâ tere, donec in mucilaginem abeat.

MUCILAGO AMYLI.

℞ Amyli drachmas tres,
Aquæ octarium;

Amylum cum Aquâ paulatim instillatâ tere; dein coque, donec in mucilaginem abeat.

DECOCTA.

DECOCTUM ALÖES COMPOSITUM.

℞ Extracti Glycyrrhizæ semunciam,
Potassæ Subcarbonatis scrupulos duos,
Alöes spicatæ Extracti contriti,
Myrrhæ contritæ,
Croci Stigmatum, singulorum drachmam,
Aquæ octarium;

Decoque ad fluiduncias duodecim, et cola; tum adjice
Tincturæ Cardamomi compositæ fluiduncias quatuor.

DECOCTUM CINCHONÆ.

℞ Cinchonæ lancifoliæ Corticis contusi unciam,
Aquæ octarium;

Coque per sextam horæ partem in vase levitèr clauso, et liquorem adhuc calentem cola.

DECOCTUM CYDONIÆ.

℞ Cydoniæ Seminum drachmas duas,
Aquæ octarium;

Coque lento igne per sextam horæ partem; dein cola.

DECOCTUM DULCAMARÆ.

℞ Dulcamaræ Caulis concisi unciam,
Aquæ octarium cum semisse;

Decoque ad octarium, et cola.

DECOCTUM HORDEI.

℞ Hordei Seminum uncias duas,
Aquæ octarios quatuor cum semisse;

Res alienas Hordei Seminibus adhærentes aquâ frigidâ primùm ablue; deindè, affuso aquæ octario dimidio, Semina paulisper coque. Hâc aquâ abjectâ, superinfunde quod

reliquum est, prius fervefactum; tum decoque ad octarios duos, et cola.

DECOCTUM HORDEI COMPOSITUM.

℞ Decocti Hordei octarios duos,
Caricæ Fructûs concisi uncias duas,
Glycyrrhizæ Radicis concisæ et contusæ unciam dimidiam,
Uvarum passarum, demptis acinis, uncias duas,
Aquæ octarium;

Decoque ad octarios duos, et cola.

DECOCTUM LICHENIS.

℞ Lichenis unciam,
Aquæ octarium cum semisse;

Decoque ad octarium, et cola.

DECOCTUM MALVÆ COMPOSITUM.

℞ Malvæ exsiccatæ unciam,
Anthemidis Florum exsiccatorum unciam dimidiam,
Aquæ octarium;

Coque per quartam horæ partem, et cola.

DECOCTUM PAPAVERIS.

℞ Papaveris Capsularum concisarum uncias quatuor,
Aquæ octarios quatuor;

Coque per quartam horæ partem, et cola.

DECOCTUM QUERCUS.

℞ Quercûs Corticis unciam,
Aquæ octarios duos;

Decoque ad octarium, et cola.

DECOCTUM SARSAPARILLÆ.

℞ Sarsaparillæ Radicis concisæ uncias quatuor,
Aquæ ferventis octarios quatuor;

Macera per horas quatuor, in vase levitèr clauso, prope ignem; dein Sarsaparillæ radicem exime et contunde. Contusam liquori redde, et iterum simili modo macera per horas duas; dein decoque ad octarios duos, et cola.

DECOCTUM SARSAPARILLÆ COMPOSITUM.

℞ Decocti Sarsaparillæ ferventis octarios quatuor,
Sassafras Radicis concisæ,
Guaiaci Ligni rasi,
Glycyrrhizæ Radicis contusæ, singulorum unciam,
Mezerei Radicis Corticis drachmas tres;

Decoque per quartam horæ partem, et cola.

DECOCTUM SENEGÆ.

℞ Senegæ Radicis unciam,
Aquæ octarios duos;

Decoque ad octarium, et cola.

DECOCTUM ULMI.

℞ Ulmi Corticis recentis contusi uncias quatuor,
Aquæ octarios quatuor;

Decoque ad octarios duos, et cola.

DECOCTUM VERATRI.

℞ Veratri Radicis contritæ unciam,
Aquæ octarios duos,
Spiritûs rectificati fluiduncias duas;

Decoque Veratri Radicem ex Aquâ ad octarium, et cola; tum, postquam refrixerit, adjice Spiritum.

EXTRACTA.

In Extractis omnibus præparandis, humorem, balneo aquoso, in patinâ quamprimùm consume, donec fiat crassitudo ad pilulas fingendas idonea, et sub finem spathâ assiduè move.

Extractis omnibus mollioribus paululum Spiritûs rectificati insperge.

EXTRACTUM ACONITI.

℞ Aconiti Foliorum recentium libram;

Contunde in mortario lapideo, insperso exiguo aquæ; dein exprime succum, eumque non defæcatum consume, donec idoneam crassitudinem habeat.

EXTRACTUM ALÖES PURIFICATUM.

℞ Alöes spicatæ Extracti contriti libram dimidiam,
Aquæ ferventis octarios quatuor;

Macera per triduum leni calore; dein cola, et sepone, ut fæces subsidant. Liquorem defæcatum effunde, et consume, donec idoneam crassitudinem habeat.

EXTRACTUM ANTHEMIDIS.

℞ Anthemidis Florum exsiccatorum libram,
Aquæ congium;

Decoque ad octarios quatuor, et liquorem adhuc calentem cola; denique eum consume, donec idoneam crassitudinem habeat.

EXTRACTUM BELLADONNÆ.

℞ Belladonnæ Foliorum recentium libram;

Contunde in mortario lapideo, insperso exiguo aquæ; dein exprime succum, eumque

non defæcatum consume, donec idoneam crassitudinem habeat.

EXTRACTUM CINCHONÆ.

℞ Cinchonæ lancifoliæ Corticis contusi libram,
Aquæ congium ;

Decoque ad octarios sex, et liquorem adhuc calentem cola. Eodem modo, ex pari Aquæ mensurâ quater decoque, et cola. Denique liquores omnes in unum mistos consume, donec idoneam crassitudinem habeant.

Hoc Extractum servari debet MOLLE, quod ad pilulas fingendas aptum sit, et DURUM, quod in pulverem teri possit.

EXTRACTUM CINCHONÆ RESINOSUM.

℞ Cinchonæ lancifoliæ Corticis contusi libram,
Spiritûs rectificati octarios quatuor;

Macera per dies quatuor, et cola. Distillet tinctura balneo aquoso, donec idoneam crassitudinem habeat.

EXTRACTUM COLOCYNTHIDIS.

℞ Colocynthidis Pulpæ libram,
Aquæ congium;

Decoque ad octarios quatuor, et liquorem adhuc calentem cola; denique eum consume, donec idoneam crassitudinem habeat.

EXTRACTUM COLOCYNTHIDIS COMPOSITUM.

℞ Colocynthidis Pulpæ concisæ drachmas sex,
Alöes spicatæ Extracti contriti unciam cum semisse,
Scammoneæ Gummi-resinæ contritæ unciam dimidiam,
Cardamomi Seminum contritorum drachmam,
Spiritûs tenuioris libram;

Macera Colocynthidis Pulpam in Spiritu leni calore, per quatriduum. Liquorem cola, eique adjice Alöen, et Scammoneam; dein Spiritum consume, donec idoneam crassitu-

dinem habeat, et, sub finem, Cardamomi Semina admisce.

EXTRACTUM CONII.

℞ Conii recentis libram;

Contunde in mortario lapideo, insperso exiguo aquæ; dein exprime succum, eumque non defæcatum consume, donec idoneam crassitudinem habeat.

EXTRACTUM ELATERII.

Elaterii Poma matura scinde, et succum levissimè expressum per cribrum setaceum tenuissimum in vas vitreum cola; deinde per aliquot horas sepone, donec crassior pars subsederit. Rejectâ parte tenuiore supernatante, partem crassiorem leni calore exsicca.

EXTRACTUM GENTIANÆ.

℞ Gentianæ Radicis concisæ libram,
Aquæ ferventis congium;

Macera per horas viginti quatuor; tum de-

coque ad octarios quatuor, et liquorem adhuc calentem cola; denique eum consume, donec idoneam crassitudinem habeat.

EXTRACTUM GLYCYRRHIZÆ.

℞ Glycyrrhizæ Radicis concisæ libram,
Aquæ ferventis congium;

Macera per horas viginti quatuor; tum decoque ad octarios quatuor, et liquorem adhuc calentem cola; denique eum consume, donec idoneam crassitudinem habeat.

EXTRACTUM HÆMATOXYLI.

℞ Hæmatoxyli Ligni contriti libram,
Aquæ ferventis congium;

Macera per horas viginti quatuor; tum decoque ad octarios quatuor, et liquorem adhuc calentem cola; denique eum consume, donec idoneam crassitudinem habeat.

EXTRACTUM HUMULI.

℞ Humuli Strobilorum uncias quatuor,
Aquæ congium;

Decoque ad octarios quatuor, et liquorem adhuc calentem cola; denique eum consume, donec idoneam crassitudinem habeat.

EXTRACTUM HYOSCYAMI.

℞ Hyoscyami Foliorum recentium libram;

Contunde in mortario lapideo, insperso exiguo aquæ; dein exprime succum, eumque non defæcatum consume, donec idoneam crassitudinem habeat.

EXTRACTUM JALAPÆ.

℞ Jalapæ Radicis contritæ libram,
Spiritûs rectificati octarios quatuor,
Aquæ octarios decem;

Macera Jalapæ Radicem in Spiritu per quatriduum, et tincturam effunde. Residuum

ex Aquâ decoque ad octarios duos. Dein tincturam et decoctum separatim cola, et hoc consumatur, illa distillet, donec utrumque spissecat. Postremò Extractum cum Resinâ misce, et consume, donec idoneam crassitudinem habeat.

Servetur hoc Extractum MOLLE, quod ad pilulas fingendas aptum sit, et DURUM, quod in pulverem teri possit.

EXTRACTUM OPII.

℞ Opii concisi libram dimidiam,
Aquæ octarios tres;

Opio adjice exiguum aquæ, et macera per horas duodecim, ut mollescat; tum, instillatâ paulatim reliquâ Aquâ, tere donec quàm optimè misceantur, et sepone, ut fæces subsidant; dein liquorem cola, et consume, donec idoneam crassitudinem habeat.

EXTRACTUM PAPAVERIS.

℞ Papaveris Capsularum contusarum exemptis seminibus libram,
Aquæ ferventis congium;

Macera per horas viginti quatuor; tum decoque ad octarios quatuor, et liquorem adhuc calentem cola; denique eum consume, donec idoneam crassitudinem habeat.

EXTRACTUM RHEI.

℞ Rhei Radicis contritæ libram,
Spiritûs tenuioris octarium,
Aquæ octarios septem;

Macera per quatriduum leni calore; dein cola, et sepone, ut fæces subsidant. Liquorem effunde, eumque defæcatum consume, donec idoneam crassitudinem habeat.

EXTRACTUM SARSAPARILLÆ.

℞ Sarsaparillæ Radicis concisæ libram,
Aquæ ferventis congium;

Macera per horas viginti quatuor; tum decoque ad octarios quatuor, et liquorem adhuc calentem cola; denique eum consume, donec idoneam crassitudinem habeat.

EXTRACTUM TARAXACI.

℞ Taraxaci Radicis recentis contusæ libram,
Aquæ ferventis congium;

Macera per horas viginti quatuor; tum decoque ad octarios quatuor, et liquorem adhuc calentem cola; denique eum consume, donec idoneam crassitudinem habeat.

MISTURÆ.

MISTURA AMMONIACI.

℞ Ammoniaci drachmas duas,
Aquæ octarium dimidium;

Tere Ammoniacum cum Aquâ paulatim instillatâ, donec quàm optimè misceantur.

MISTURA AMYGDALARUM.

℞ Confectionis Amygdalarum uncias duas,
Aquæ distillatæ octarium;

Confectioni Amygdalarum Aquam paulatim inter terendum adjice, donec misceantur; dein cola.

MISTURA ASSAFŒTIDÆ.

℞ Assafœtidæ drachmas duas,
Aquæ octarium dimidium ;

Tere Assafœtidam cum Aquâ paulatim instillatâ, donec quàm optimè misceantur.

MISTURA CAMPHORÆ.

℞ Camphoræ drachmam dimidiam,
Spiritûs rectificati minima decem,
Aquæ octarium ;

Camphoram primùm cum Spiritu tere, deinde cum Aquâ paulatim instillatâ, et cola.

MISTURA CORNU USTI.

℞ Cornuum ustorum uncias duas,
Acaciæ Gummi contriti unciam,
Aquæ octarios tres ;

Decoque ad octarios duos, assiduè movens ; tum cola.

MISTURA CRETÆ.

℞ Cretæ præparatæ unciam dimidiam,
Sacchari purificati drachmas tres,
Acaciæ Gummi contriti unciam dimidiam,
Aquæ octarium;

Misce.

MISTURA FERRI COMPOSITA.

℞ Myrrhæ contritæ drachmam,
Potassæ Subcarbonatis grana viginti quinque,
Aquæ Rosæ fluiduncias septem cum semisse,
Ferri Sulphatis contritæ scrupulum,
Spiritûs Myristicæ fluidunciam dimidiam,
Sacchari purificati drachmam;

Myrrham cum Potassæ Subcarbonate et Saccharo simul tere, hisque, dum conteruntur, primùm Aquam Rosæ et Spiritum Myristicæ, postremò Ferri Sulphatem, adjice. Misturam statim in vas vitreum idoneum immitte, idque obtura.

MISTURA GUAIACI.

℞ Guaiaci Gummi-resinæ drachmam cum semisse,
Sacchari purificati drachmas duas,
Mucilaginis Acaciæ Gummi fluidrachmas duas,
Aquæ Cinnamomi fluiduncias octo;

Tere Guaiacum cum Saccharo, deinde cum Mucilagine, hisque, dum conteruntur, Aquam Cinnamomi paulatim adjice.

MISTURA MOSCHI.

℞ Moschi,
Acaciæ Gummi contriti,
Sacchari purificati, singulorum drachmam,
Aquæ Rosæ fluiduncias sex;

Tere Moschum cum Saccharo, deinde cum Gummi, instillatâ paulatim Aquâ Rosæ.

SPIRITUS.

ALCOHOL.

℞ Spiritûs rectificati congium,
Potassæ Subcarbonatis libras tres;

Spiritui injice Potassæ Subcarbonatis libram, ad gradum trecentesimum prius calefactam, et per horas viginti quatuor macera, sæpiùs movens; tum effuso Spiritui adjice Potassæ Subcarbonatis quod reliquum est, ad eundem gradum calefactum; denique balneo aquoso distillet Alcohol, quod servandum est in vase obturato.

Alcoholis pondus specificum est ad pondus specificum Aquæ distillatæ, ut .815 ad 1.000.

SPIRITUS AMMONIÆ.

℞ Spiritûs tenuioris octarios tres,
Ammoniæ Muriatis uncias quatuor,
Potassæ Subcarbonatis uncias sex;

Misce, et lento igne in receptaculum frigefactum distillet octarius cum semisse.

SPIRITUS AMMONIÆ AROMATICUS.

℞ Cinnamomi Corticis contusi,
Caryophyllorum contusorum, singulorum drachmas duas,
Limonum Corticis uncias quatuor,
Potassæ Subcarbonatis libram dimidiam,
Ammoniæ Muriatis uncias quinque,
Spiritus rectificati octarios quatuor,
Aquæ congium;

Misce, et distillent octarii sex.

SPIRITUS AMMONIÆ FŒTIDUS.

℞ Spiritûs Ammoniæ octarios duos,
Assafœtidæ uncias duas;

Macera per horas duodecim; tum lento igne in receptaculum frigefactum distillet octarius cum semisse.

SPIRITUS AMMONIÆ SUCCINATUS.

℞ Mastiches drachmas tres,
Spiritûs rectificati fluidrachmas novem,
Lavandulæ Olei minima quatuordecim,
Succini Olei minima quatuor,
Liquoris Ammoniæ fluiduncias decem;

Mastichen in Spiritu macera, ut liquetur, et tincturam defæcatam effunde; tum cætera adjice, et omnia simul agita.

SPIRITUS ANISI.

℞ Anisi Seminum contusorum libram dimidiam,

Spiritûs tenuioris congium,
Aquæ quod satis sit ad prohibendum empyreuma;

Macera per horas viginti quatuor; tum lento igne distillet congius.

SPIRITUS ARMORACIÆ COMPOSITUS.

℞ Armoraciæ Radicis recentis concisæ,
Aurantii Corticis exsiccati, singulorum libram,
Myristicæ Nucleorum contusorum unciam dimidiam,
Spiritûs tenuioris congium,
Aquæ quod satis sit ad prohibendum empyreuma;

Macera per horas viginti quatuor; tum lento igne distillet congius.

SPIRITUS CAMPHORÆ.

℞ Camphoræ uncias quatuor,
Spiritûs rectificati octarios duos;

Misce, ut liquetur Camphora.

SPIRITUS CARUI.

℞ Carui Seminum contusorum libram cum semisse,
Spiritûs tenuioris congium,
Aquæ quod satis sit ad prohibendum empyreuma;

Macera per horas viginti quatuor; tum lento igne distillet congius.

SPIRITUS CINNAMOMI.

℞ Cinnamomi Corticis contusi libram,
Spiritûs tenuioris congium,
Aquæ quod satis sit ad prohibendum empyreuma;

Macera per horas viginti quatuor; tum lento igne distillet congius.

SPIRITUS JUNIPERI COMPOSITUS.

℞ Juniperi Baccarum contusarum libram,
Carui Seminum contusorum,

Fœniculi Seminum contusorum, singulorum unciam cum semisse,
Spiritûs tenuioris congium,
Aquæ quod satis sit ad prohibendum empyreuma;

Macera per horas viginti quatuor; tum lento igne distillet congius.

SPIRITUS LAVANDULÆ.

℞ Lavandulæ Florum recentium libras duas,
Spiritûs rectificati congium,
Aquæ quod satis sit ad prohibendum empyreuma;

Macera per horas viginti quatuor; tum lento igne distillet congius.

SPIRITUS LAVANDULÆ COMPOSITUS.

℞ Spiritûs Lavandulæ octarios tres;
Spiritûs Rosmarini octarium,
Cinnamomi Corticis contusi,

Myristicæ Nucleorum contusorum, singulorum unciam dimidiam,
Pterocarpi Ligni concisi unciam ;

Macera per dies quatuordecim, et cola.

SPIRITUS MENTHÆ PIPERITÆ.

℞ Menthæ piperitæ exsiccatæ libram cum semisse,
Spiritûs tenuioris congium,
Aquæ quod satis sit ad prohibendum empyreuma ;

Macera per horas viginti quatuor ; tum lento igne distillet congius.

SPIRITUS MENTHÆ VIRIDIS.

℞ Menthæ viridis exsiccatæ libram cum semisse,
Spiritûs tenuioris congium,
Aquæ quod satis sit ad prohibendum empyreuma ;

Macera per horas viginti quatuor ; tum lento igne distillet congius.

SPIRITUS MYRISTICÆ.

℞ Myristicæ Nucleorum contusorum uncias duas,
Spiritûs tenuioris congium,
Aquæ quod satis sit ad prohibendum empyreuma;

Macera per horas viginti quatuor; tum lento igne distillet congius.

SPIRITUS PIMENTÆ.

℞ Pimentæ Baccarum contusarum uncias duas,
Spiritûs tenuioris congium,
Aquæ quod satis sit ad prohibendum empyreuma;

Macera per horas viginti quatuor; tum lento igne distillet congius.

SPIRITUS PULEGII.

℞ Pulegii exsiccati libram cum semisse,
Spiritûs tenuioris congium,
Aquæ quod satis sit ad prohibendum empyreuma;

Macera per horas viginti quatuor; tum lento igne distillet congius.

SPIRITUS ROSMARINI.

℞ Rosmarini Cacuminum recentium libras duas,
Spiritûs rectificati congium,
Aquæ quod satis sit ad prohibendum empyreuma;

Macera per horas viginti quatuor; tum lento igne distillet congius.

TINCTURÆ.

Tincturæ omnes in vasis vitreis clausis præparari, et inter macerandum sæpiùs agitari, debent.

TINCTURA ALÖES.

℞ Alöes spicatæ Extracti contriti unciam dimidiam,
Extracti Glycyrrhizæ unciam cum semisse,
Aquæ octarium,
Spiritûs rectificati fluiduncias quatuor;

Macera balneo arenæ, donec liquentur Extracta; tum cola.

TINCTURA ALÖES COMPOSITA.

℞ Alöes spicatæ Extracti contriti,
Croci Stigmatum, singulorum uncias tres,
Tincturæ Myrrhæ octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA ASSAFŒTIDÆ.

℞ Assafœtidæ uncias quatuor,
Spiritûs rectificati octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA AURANTII.

℞ Aurantii Corticis recentis uncias tres,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA BENZÖINI COMPOSITA.

℞ Benzöini uncias tres,
Styracis Balsami colati uncias duas,
Balsami Tolutani unciam,
Alöes spicatæ Extracti unciam dimidiam,
Spiritûs rectificati octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA CALUMBÆ.

℞ Calumbæ Radicis concisæ uncias duas cum semisse,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA CAMPHORÆ COMPOSITA.

℞ Camphoræ scrupulos duos,
Opii duri contriti,
Acidi Benzöici, singulorum drachmam,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA CAPSICI.

℞ Capsici Baccarum unciam,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA CARDAMOMI.

℞ Cardamomi Seminum contusorum uncias tres,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA CARDAMOMI COMPOSITA.

℞ Cardamomi Seminum,
Carui Seminum,
Cocci, singulorum contritorum drachmas duas,
Cinnamomi Corticis contusi unciam dimidiam,

Uvarum passarum, demtis acinis, uncias quatuor,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA CASCARILLÆ.

℞ Cascarillæ Corticis contriti uncias quatuor,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA CASTOREI.

℞ Castorei contriti uncias duas,
Spiritûs rectificati octarios duos;

Macera per dies septem, et cola.

TINCTURA CATECHU.

℞ Catechu Extracti uncias tres,
Cinnamomi Corticis contusi uncias duas,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA CINCHONÆ.

℞ Cinchonæ lancifoliæ Corticis contriti uncias septem,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA CINCHONÆ AMMONIATA.

℞ Cinchonæ lancifoliæ Corticis contriti uncias quatuor,
Spiritûs Ammoniæ aromatici octarios duos;

Macera per dies decem, et cola.

TINCTURA CINCHONÆ COMPOSITA.

℞ Cinchonæ lancifoliæ Corticis contriti uncias duas,
Aurantii Corticis exsiccati unciam cum semisse,
Serpentariæ Radicis contusæ drachmas tres,

Croci Stigmatum drachmam,
Cocci contriti scrupulos duos,
Spiritûs tenuioris fluiduncias viginti;

Macera per dies quatuordecim, et cola.

TINCTURA CINNAMOMI.

℞ Cinnamomi Corticis contusi uncias tres,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA CINNAMOMI COMPOSITA.

℞ Cinnamomi Corticis contusi drachmas sex,
Cardamomi Seminum contusorum drachmas tres,
Piperis longi Fructûs contriti,
Zingiberis Radicis concisæ, singulorum drachmas duas,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA DIGITALIS.

℞ Digitalis Foliorum exsiccatorum uncias quatuor,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA GENTIANÆ COMPOSITA.

℞ Gentianæ Radicis concisæ uncias duas,
Aurantii Corticis exsiccati unciam,
Cardamomi Seminum contusorum unciam dimidiam,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim leni calore, et cola.

TINCTURA GUAIACI.

℞ Guaiaci Gummi-resinæ contritæ libram dimidiam,
Spiritûs rectificati octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA GUAIACI AMMONIATA.

℞ Guaiaci Gummi-resinæ contritæ uncias quatuor,
Spiritûs Ammoniæ aromatici octarium cum semisse ;

Macera per dies quatuordecim, et cola.

TINCTURA HELLEBORI NIGRI.

℞ Hellebori nigri Radicis concisæ uncias quatuor,
Spiritûs tenuioris octarios duos ;

Macera per dies quatuordecim, et cola.

TINCTURA HUMULI.

℞ Humuli Strobilorum uncias quinque,
Spiritûs tenuioris octarios duos ;

Macera per dies quatuordecim, et cola.

TINCTURA HYOSCYAMI.

℞ Hyoscyami Foliorum exsiccatorum uncias quatuor,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA JALAPÆ.

℞ Jalapæ Radicis contritæ uncias octo,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim leni calore, et cola.

TINCTURA KINO.

℞ Kino contriti uncias tres,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA LYTTÆ.

℞ Lyttæ contusæ drachmas tres,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA MYRRHÆ.

℞ Myrrhæ contusæ uncias quatuor,
Spiritûs rectificati octarios duos,
Aquæ octarium;

Macera per dies quatuordecim, et cola.

TINCTURA OPII.

℞ Opii duri contriti uncias duas cum semisse,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA RHEI.

℞ Rhei Radicis concisæ uncias duas,
Cardamomi Seminum contusorum unciam dimidiam,
Croci Stigmatum drachmas duas,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim leni calore, et cola.

TINCTURA RHEI COMPOSITA.

℞ Rhei Radicis concisæ uncias duas,
Glycyrrhizæ Radicis contusæ unciam dimidiam,
Zingiberis Radicis concisæ,
Croci Stigmatum, singulorum drachmas duas,
Spiritûs tenuioris octarium,
Aquæ fluiduncias duodecim;

Macera per dies quatuordecim leni calore, et cola.

TINCTURA SCILLÆ.

℞ Scillæ Radicis recèns exsiccatæ uncias quatuor,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA SENNÆ.

℞ Sennæ Foliorum uncias tres,
Carui Seminum contusorum drachmas tres,
Cardamomi Seminum contusorum drachmam,
Uvarum passarum, demtis acinis, uncias quatuor,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim leni calore, et cola.

TINCTURA SERPENTARIÆ.

℞ Serpentariæ Radicis uncias tres,
Spiritûs tenuioris octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA VALERIANÆ.

℞ Valerianæ Radicis uncias quatuor,
Spiritûs tenuioris octarios duos ;

Macera per dies quatuordecim, et cola.

TINCTURA VALERIANÆ AMMONIATA.

℞ Valerianæ Radicis uncias quatuor,
Spiritûs Ammoniæ aromatici octarios duos;

Macera per dies quatuordecim, et cola.

TINCTURA ZINGIBERIS.

℞ Zingiberis Radicis concisæ uncias duas,
Spiritûs tenuioris octarios duos ;

Macera per dies quatuordecim, et cola.

ÆTHEREA.

ÆTHER SULPHURICUS.

℞ Spiritûs rectificati,
Acidi sulphurici, singulorum *pondere* libram cum semisse;

Spiritum retortæ vitreæ infunde, eique Acidum paulatim adjice, sæpiùs agitans, et cavens ne gradum centesimum vigesimum calor excedat, donec misceantur. Dein in arenam, ad gradum ducentesimum priùs calefactam, cautè impone, ut quàm celerrimè ebulliat liquor, transeatque Æther in receptaculum tubulatum, cui aptatum est vas recipiens glacie vel aquâ refrigeratum. Distillet liquor, donec pars aliqua gravior transire incipiat, quæ sub Æthere in fundo receptaculi conspicitur. Liquori qui restat in retortâ rursus Spiritûs rectificati uncias duodecim affunde, ut simili modo distillet Æther.

ÆTHER RECTIFICATUS.

℞ Ætheris sulphurici fluiduncias quatuordecim,
Potassæ fusæ unciam dimidiam,
Aquæ distillatæ fluiduncias duas;

Potassam in Aquâ primùm liqua, eique Ætherem adjice, assiduè agitans, donec misceantur; denique, calore gradûs circiter centesimi vigesimi, ex retortâ amplâ distillent in vas refrigeratum Ætheris rectificati fluiduncìæ duodecim.

OLEUM ÆTHEREUM.

Post distillationem Ætheris sulphurici, lenito calore, distillet iterum liquor, donec spuma nigra intumescat; tum protinus ab igne retortam remove. Liquori qui restat in retortâ, aquam adjice, ut supernatet pars oleosa. Hanc aufer, eique admisce Liquoris Calcis quantum satis sit, ad acidum, quod inest, saturandum, et simul agita. Denique Oleum æthereum separatum exime.

SPIRITUS ÆTHERIS AROMATICUS.

℞ Cinnamomi Corticis contusi drachmas tres,
Cardamomi Seminum contritorum drachmam cum semisse,
Piperis longi Fructûs contriti,
Zingiberis Radicis concisæ, singulorum drachmam,
Spiritûs Ætheris sulphurici octarium;

Macera per dies quatuordecim, in vase vitreo obturato, et cola.

SPIRITUS ÆTHERIS NITRICI.

℞ Spiritûs rectificati octarios duos,
Acidi nitrici *pondere* uncias tres;

Spiritui Acidum paulatim adjice, et misce, cavens ne gradum centesimum vigesimum calor excedat; tum, leni calore, distillent fluidunciæ viginti quatuor

SPIRITUS ÆTHERIS SULPHURICI.

℞ Ætheris rectificati octarium dimidium,
Spiritûs rectificati octarium;

Misce.

SPIRITUS ÆTHERIS SULPHURICI COMPOSITUS.

℞ Spiritûs Ætheris sulphurici octarium,
Olei Ætherei fluidrachmas duas;

Misce.

VINA.

VINUM ALÖES.

℞ Alöes spicatæ Extracti uncias octo,
Canellæ Corticis uncias duas,
Vini octarios sex,
Spiritûs tenuioris octarios duos;

Alöen cum arenâ albâ, sordibus purgatâ, in pulverem tere; Canellæ Corticem etiam in pulverem tere; hisque, inter se mistis, Vinum et Spiritum affunde. Macera per dies quatuordecim, subinde movens, et cola.

VINUM IPECACUANHÆ.

℞ Ipecacuanhæ Radicis contusæ uncias duas,
Vini octarios duos;

Macera per dies quatuordecim, et cola.

VINUM OPII.

℞ Extracti Opii unciam,
Cinnamomi Corticis contusi,
Caryophyllorum contusorum, singulorum drachmam,
Vini octarium;

Macera per dies octo, et cola.

VINUM VERATRI.

℞ Veratri Radicis concisæ uncias octo,
Vini octarios duos cum semisse;

Macera per dies quatuordecim, et cola.

ACETICA.

ACETUM COLCHICI.

℞ Colchici Radicis recentis concisæ unciam,
Acidi acetici octarium,
Spiritûs tenuioris fluidunciam;

Colchici Radicem macera cum Aceto, in vase vitreo clauso, per horas viginti quatuor; dein exprime, et sepone, ut fæces subsidant; denique liquori defæcato Spiritum adjice.

ACETUM SCILLÆ.

℞ Scillæ Radicis recèns exsiccatæ libram,
Acidi acetici octarios sex,
Spiritûs tenuioris octarium dimidium

Scillæ Radicem macera cum Aceto, leni calore, in vase vitreo clauso, per horas viginti quatuor; dein exprime, et sepone, ut fæces subsidant; denique liquori defæcato Spiritum adjice.

MELLITA.

MEL DESPUMATUM.

Mel in balneo aquoso liqua; tum spumam aufer.

MEL BORACIS.

℞ Sodæ Subboratis contritæ drachmam,
Mellis despumati unciam;

Misce.

MEL ROSÆ.

℞ Rosæ Gallicæ Petalorum exsiccatorum uncias quatuor,
Aquæ ferventis octarios tres,
Mellis despumati libras quinque;

Macera Rosæ Petala in Aquâ per horas sex; deindè liquori colato adjice mel, et balneo aquoso ad idoneam crassitudinem decoque.

OXYMEL SIMPLEX.

℞ Mellis despumati libras duas,
Acidi acetici octarium;

Decoque in vase vitreo, lento igne, ad idoneam crassitudinem.

OXYMEL SCILLÆ.

℞ Mellis despumati libras tres,
Aceti Scillæ octarios duos;

Decoque in vase vitreo, lento igne, ad idoneam crassitudinem.

SYRUPI.

Conserventur Syrupi in loco, ubi calor gradum quinquagesimum quintum nunquam excedat.

SYRUPUS ALTHÆÆ.

℞ Althææ Radicis recentis contusæ libram dimidiam,
Sacchari purificati libras duas,
Aquæ octarios quatuor;

Decoque Aquam cum Radice ad dimidium, et liquorem frigefactum exprime. Sepone per horas viginti quatuor, ut fæces subsidant; tum liquorem effunde, atque, adjecto Saccharo, ad idoneam crassitudinem decoque.

SYRUPUS AURANTIORUM.

℞ Aurantiorum Corticis recentis uncias duas,
Aquæ ferventis octarium,
Sacchari purificati libras tres;

Macera Corticem in Aquâ per horas duodecim in vase levitèr clauso; tum liquorem effunde, eique Saccharum adjice.

SYRUPUS CROCI.

℞ Croci Stigmatum unciam,
Aquæ ferventis octarium,
Sacchari purificati libras duas cum semisse;

Macera Croci Stigmata in Aquâ, per horas duodecim, in vase levitèr clauso; dein liquorem cola, et Saccharum adjice.

SYRUPUS LIMONUM.

℞ Limonum Succi colati octarium,
Sacchari purificati libras duas;

Liqua Saccharum in Succo Limonum, eodem modo quo de Syrupo simplici præceptum est.

SYRUPUS MORI.

℞ Mori Succi colati octarium,
Sacchari purificati libras duas;

Liqua Saccharum in Succo Mori, eodem modo quo de Syrupo simplici præceptum est.

SYRUPUS PAPAVERIS.

℞ Papaveris Capsularum exsiccatarum et contusarum, exemptis seminibus, uncias quatuordecim,
Sacchari purificati libras duas,
Aquæ ferventis congios duos cum semisse;

Macera Capsulas in Aquâ per horas viginti quatuor; tum balneo aquoso ad congium decoque, et fortiter exprime. Liquorem colatum iterum decoque ad octarios duos, et adhuc ferventem cola. Sepone per horas duodecim, ut fæces subsidant; tum liquorem defæcatum decoque ad octarium, et Saccha-

rum adjice, eodem modo quo de Syrupo simplici præceptum est.

SYRUPUS RHAMNI.

℞ Rhamni Baccarum Succi recentis octarios quatuor,
Zingiberis Radicis concisæ,
Pimentæ Baccarum contritarum, singulorum unciam dimidiam,
Sacchari purificati libras tres cum semisse;

Sepone Succum per triduum, ut fæces subsidant, et cola. Succi defæcati octario Zingiberis Radicem et Pimentæ Baccas adjice; tum macera leni calore per horas quatuor, et cola; quod reliquum est ad mensuram octarii cum semisse decoque; liquores misce; et Saccharum adjice, eodem modo quo de Syrupo simplici præceptum est.

SYRUPUS RHŒADOS.

℞ Rhœados Petalorum recentium libram,
Aquæ ferventis octarium cum fluidunciis duabus,
Sacchari purificati libras duas cum semisse;

Aquæ, balneo aquoso calefactæ, Rhœados Petala paulatim adjice, subinde movens; tum, vase remoto, macera per horas duodecim; dein liquorem exprime, et sepone, ut fæces subsidant; denique Saccharum adjice, eodem modo quo de Syrupo simplici præceptum est.

SYRUPUS ROSÆ.

℞ Rosæ centifoliæ Petalorum exsiccatorum uncias septem,
Sacchari purificati libras sex,
Aquæ ferventis octarios quatuor;

Macera Rosæ Petala in Aquâ per horas duodecim, et cola. Liquorem colatum balneo aquoso consume ad octarios duos cum semisse; dein Saccharum adjice, eodem modo quo de Syrupo simplici præceptum est.

SYRUPUS SENNÆ.

℞ Sennæ Foliorum uncias duas,
Fœniculi Seminum contusorum unciam,
Mannæ uncias tres,
Sacchari purificati libram,
Aquæ ferventis octarium;

Sennæ Folia et Fœniculi Semina in Aquâ macera leni calore per horam. Liquorem cola, et cum hoc Mannam et Saccharum misce; dein decoque ad idoneam crassitudinem.

SYRUPUS SIMPLEX.

℞ Sacchari purificati libras duas cum semisse,
Aquæ octarium;

Liqua Saccharum in aquâ balneo aquoso; tum sepone per horas viginti quatuor; dein spumam aufer, et à fæcibus, si quæ sint, liquorem purum effunde.

SYRUPUS TOLUTANUS.

℞ Balsami Tolutani unciam,
Aquæ ferventis octarium,
Sacchari purificati libras duas;

Coque Balsamum in Aquâ per horam dimidiam in vase clauso, subinde movens, et liquorem refrigeratum cola; dein Saccharum adjice, eodem modo quo de Syrupo simplici præceptum est.

SYRUPUS ZINGIBERIS.

℞ Zingiberis Radicis concisæ uncias duas,
Aquæ ferventis octarium,
Sacchari purificati libras duas;

Macera Zingiberis Radicem in aquâ per horas quatuor, et cola; dein Saccharum adjice, eodem modo quo de Syrupo simplici præceptum est.

CONFECTIONES.

Confectiones, si diu servatæ indurescant, Aquâ humectandæ sunt, ut idonea crassitudo restituatur.

CONFECTIO AMYGDALARUM.

℞ Amygdalarum dulcium unciam,
Acaciæ Gummi contriti drachmam,
Sacchari purificati unciam dimidiam;

Amygdalis priùs in Aquâ maceratis, demptisque pelliculis, omnia simul contunde, donec corpus unum sit.

CONFECTIO AROMATICA.

℞ Cinnamomi Corticis,
Myristicæ Nucleorum, singulorum uncias duas,
Caryophyllorum unciam,

Cardamomi Seminum unciam dimidiam,
Croci Stigmatum exsiccatorum uncias duas,
Testarum præparatarum uncias sedecim,
Sacchari purificati contriti libras duas,
Aquæ octarium;

Arida simul in pulverem subtilissimum tere; tum Aquam paulatim adjice, et misce, donec corpus unum sit.

CONFECTIO AURANTIORUM.

℞ Aurantiorum Corticis exterioris recentis, radulâ separati, libram,
Sacchari purificati libras tres;

Corticem, in mortario lapideo, pistillo ligneo contunde; tum, adjecto Saccharo, iterum contunde, donec corpus unum sit.

CONFECTIO CASSIÆ.

℞ Cassiæ Pulpæ recentis libram dimidiam,
Mannæ uncias duas,
Tamarindi Pulpæ unciam,
Syrupi Rosæ octarium dimidium;

Mannam contunde; tum, balneo aquoso, in Syrupo liqua; deinde admisce pulpas, et humorem consume, donec idonea fiat crassitudo.

CONFECTIO OPII.

℞ Opii duri contriti drachmas sex,
Piperis longi Fructûs unciam,
Zingiberis Radicis uncias duas,
Carui Seminum uncias tres,
Syrupi octarium;

Opium cum Syrupo calefacto contere; tum cætera contrita adjice, et misce.

CONFECTIO ROSÆ CANINÆ.

℞ Rosæ caninæ Pulpæ libram,
Sacchari purificati contriti uncias viginti;

Pulpam, in balneo aquoso, leni calori expone; tum saccharum paulatim adjice, et tere simul, donec corpus unum sit.

CONFECTIO ROSÆ GALLICÆ.

℞ Rosæ Gallicæ Petalorum nondum explicatorum, abjectis unguibus, libram,
Sacchari purificati libras tres;

Petala in mortario lapideo contunde; tum, adjecto Saccharo, iterum contunde, donec corpus unum sit.

CONFECTIO RUTÆ.

℞ Rutæ Foliorum exsiccatorum,
Carui Seminum,
Lauri Baccarum, singulorum unciam cum semisse,
Sagapeni unciam dimidiam,
Piperis nigri Fructûs drachmas duas,
Mellis despumati uncias sedecim;

Arida simul in pulverem subtilissimum tere; tum, adjecto melle, omnia misce.

CONFECTIO SCAMMONEÆ.

℞ Scammoneæ Gummi-resinæ contritæ unciam cum semisse,
Caryophyllorum contusorum,
Zingiberis Radicis contritæ, singulorum drachmas sex,
Olei Carui fluidrachmam dimidiam,
Syrupi Rosæ quantum satis sit;

Arida simul in pulverem subtilissimum tere; tum, instillato Syrupo, rursus tere; dein, adjecto Oleo Carui, omnia misce.

CONFECTIO SENNÆ.

℞ Sennæ Foliorum uncias octo,
Caricæ Fructûs libram,
Tamarindi Pulpæ,
Cassiæ Pulpæ,
Prunorum Pulpæ, singulorum libram dimidiam,
Coriandri Seminum uncias quatuor,
Glycyrrhizæ Radicis uncias tres,
Sacchari purificati libras duas cum semisse;

Sennæ Folia cum Coriandri Seminibus tere, et cribro separa pulveris misti uncias decem. Residuum cum Caricæ Fructû et Glycyrrhizæ Radice ex Aquæ octariis quatuor ad dimidium decoque; deinde exprime et cola. Liquorem colatum balneo aquoso consume, donec octarius cum semisse ex toto restet; tum, adjecto Saccharo, fiat Syrupus. Denique cum Syrupo Pulpas paulatim contere, et, injecto pulvere cribrato, omnia misce.

PULVERES.

PULVIS ALÖES COMPOSITUS.

℞ Alöes spicatæ Extracti unciam cum semisse,
Guaiaci Gummi-resinæ unciam,
Pulveris Cinnamomi compositi unciam dimidiam;

Alöes Extractum et Guaiaci Gummi-resinam separatim in pulverem tere; dein cum Pulvere Cinnamomi composito misce.

PULVIS CINNAMOMI COMPOSITUS.

℞ Cinnamomi Corticis uncias duas,
Cardamomi Seminum unciam cùm semisse,
Zingiberis Radicis unciam,
Piperis longi Fructûs unciam dimidiam;

Tere simul, ut fiat pulvis subtilissimus.

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PULVIS CONTRAJERVÆ COMPOSITUS.

℞ Contrajervæ Radicis contritæ uncias quinque,
Testarum præparatarum libram cum semisse;

Misce.

PULVIS CORNU USTI CUM OPIO.

℞ Opii duri contriti drachmam,
Cornuum ustorum et præparatorum unciam,
Cocci contriti drachmam;

Misce.

PULVIS CRETÆ COMPOSITUS.

℞ Cretæ præparatæ libram dimidiam,
Cinnamomi Corticis uncias quatuor,
Tormentillæ Radicis,
Acaciæ Gummi, singulorum uncias tres,
Piperis longi Fructûs unciam dimidiam;

Separatim in pulverem subtilissimum tere; dein misce.

PULVIS CRETÆ COMPOSITUS CUM OPIO.

℞ Pulveris Cretæ compositi uncias sex cum semisse,
Opii duri contriti scrupulos quatuor;

Misce.

PULVIS IPECACUANHÆ COMPOSITUS.

℞ Ipecacuanhæ Radicis contritæ,
Opii duri contriti, singulorum drachmam,
Potassæ Sulphatis contritæ unciam;

Misce.

PULVIS KINO COMPOSITUS.

℞ Kino drachmas quindecim,
Cinnamomi Corticis unciam dimidiam,
Opii duri drachmam;

Separatim in pulverem subtilissimum tere; dein misce.

PULVIS SCAMMONEÆ COMPOSITUS.

℞ Scammoneæ Gummi-resinæ,
Extracti Jalapæ duri, singulorum uncias duas,
Zingiberis Radicis unciam dimidiam;

Separatim in pulverem subtilissimum tere; dein misce.

PULVIS SENNÆ COMPOSITUS.

℞ Sennæ Foliorum,
Potassæ Supertartratis, singulorum uncias duas,
Scammoneæ Gummi-resinæ unciam dimidiam,
Zingiberis Radicis drachmas duas;

Scammoneæ Gummi-resinam per se, cætera simul, in pulverem subtilissimum tere; tum misce.

PULVIS TRAGACANTHÆ COMPOSITUS.

℞ Tragacanthæ contritæ,
Acaciæ Gummi contriti,
Amyli, singulorum unciam cum semisse,
Sacchari purificati uncias tres;

Amylum et Saccharum simul in pulverem tere; tum, adjectis Tragacanthâ et Acaciæ Gummi, omnia misce.

PILULÆ.

PILULÆ ALÖES COMPOSITÆ.

℞ Alöes spicatæ Extracti contriti unciam,
Extracti Gentianæ unciam dimidiam,
Olei Carui minima quadraginta,
Syrupi simplicis quantum satis sit;

Simul contunde, donec corpus unum sit.

PILULÆ ALÖES CUM MYRRHA.

℞ Alöes spicatæ Extracti uncias duas,
Croci Stigmatum,
Myrrhæ, singulorum unciam,
Syrupi simplicis quantum satis sit;

Alöes Extractum et Myrrham separatim in pulverem tere; tum omnia simul contunde, donec corpus unum sit.

PILULÆ CAMBOGIÆ COMPOSITÆ.

℞ Cambogiæ contritæ,
Alöes spicatæ Extracti contriti,
Pulveris Cinnamomi compositi, singulorum drachmam,
Saponis drachmas duas;

Misce inter se pulveres; dein, adjecto Sapone, omnia simul contunde, donec corpus unum sit.

PILULÆ FERRI COMPOSITÆ.

℞ Myrrhæ contritæ drachmas duas,
Sodæ Subcarbonatis,
Ferri Sulphatis,
Sacchari, singulorum drachmam;

Tere Myrrham cum Sodæ Subcarbonate; tum, adjectâ Ferri Sulphate, iterum tere; dein omnia simul contunde, donec corpus unum sit.

PILULÆ GALBANI COMPOSITÆ.

℞ Galbani Gummi-resinæ unciam,
Myrrhæ,
Sagapeni, singulorum unciam cum semisse,
Assafœtidæ Gummi-resinæ unciam dimidiam,
Syrupi simplicis quantum satis sit;

Simul contunde, donec corpus unum sit.

PILULÆ HYDRARGYRI.

℞ Hydrargyri purificati drachmas duas,
Confectionis Rosæ Gallicæ drachmas tres,
Glycyrrhizæ Radicis contritæ drachmam;

Hydrargyrum cum Confectione tere, donec globuli non ampliùs conspiciantur; deinde, adjectâ Glycyrrhizæ Radice, omnia simul contunde, donec corpus unum sit.

PILULÆ HYDRARGYRI SUBMURIATIS COMPOSITÆ.

℞ Hydrargyri Submuriatis,
Antimonii Sulphureti præcipitati, singulorum drachmam,
Guaiaci Gummi-resinæ contritæ drachmas duas;

Tere Hydrargyri Submuriatem cum Antimonii Sulphureto præcipitato, dein cum Guaiaci Gummi-resinâ, et adjice Mucilaginis Acaciæ quod satis sit, ut fiat idonea crassitudo.

PILULÆ SAPONIS CUM OPIO.

℞ Opii duri contriti unciam dimidiam,
Saponis duri uncias duas;

Simul contunde, donec corpus unum sit.

PILULÆ SCILLÆ COMPOSITÆ.

℞ Scillæ Radicis recèns exsiccatæ et contritæ drachmam,
Zingiberis Radicis contritæ,
Saponis duri, singulorum drachmas tres,
Ammoniaci contriti drachmas duas;

Misce inter se pulveres; deinde cum Sapone contunde, et adjice Syrupi simplicis quantum satis sit, ut idonea fiat crassitudo.

PRÆPARATA EX ANIMALIBUS.

ADEPS PRÆPARATA.

Adipem in frustula concide; tum leni igne liquefactam per linteum exprime.

CORNU USTUM.

Cornuum frusta igne aperto ure, donec penitùs albescant; deinde contere, et præpara eodem modo, quo de Cretâ præceptum est.

SEVUM PRÆPARATUM.

Sevum in frustula concide; tum leni igne liquefactum per linteum exprime.

SPONGIA USTA.

Spongiam in frustula concide, et contunde, ut à rebus alienis adhærentibus separetur; tum

in vase ferreo clauso ure, donec nigra et friabilis fiat; denique in pulverem subtilissimum tere.

TESTÆ PRÆPARATÆ.

Testas, sordibus priùs purgatas, aquâ fervente lava; tum præpara eodem modo, quo de Cretâ præceptum est.

EMPLASTRA.

EMPLASTRUM AMMONIACI.

℞ Ammoniaci purificati uncias quinque,
Acidi acetici octarium dimidium;

Liqua Ammoniacum in Aceto; dein liquorem, in vase ferreo, balneo aquoso consume, assiduè movens, donec idonea fiat crassitudo.

EMPLASTRUM AMMONIACI CUM HYDRARGYRO.

℞ Ammoniaci purificati libram,
Hydrargyri purificati uncias tres,
Olei sulphurati fluidrachmam;

Hydrargyrum cum Oleo sulphurato tere, donec globuli non ampliùs conspiciantur; deinde paulatim adjice Ammoniacum liquefactum, et omnia misce.

EMPLASTRUM CERÆ.

℞ Ceræ flavæ,
Sevi præparati, singulorum libras tres,
Resinæ flavæ libram;

Liquefac simul, et cola.

EMPLASTRUM CUMINI.

℞ Cumini Seminum,
Carui Seminum,
Lauri Baccarum, singulorum uncias tres,
Picis aridæ libras tres,
Ceræ flavæ uncias tres;

Pici et Ceræ simul liquefactis cætera adjice, in pulverem trita, et misce.

EMPLASTRUM GALBANI COMPOSITUM.

℞ Galbani Gummi-resinæ purificatæ uncias octo,
Emplastri Plumbi libras tres,
Terebinthinæ vulgaris drachmas decem,
Abietis Resinæ contritæ uncias tres;

Galbani Gummi-resinæ et Terebinthinæ simul liquefactis adjice primò Abietis Resinam, deinde Emplastrum Plumbi lento igne liquefactum, atque omnia misce.

EMPLASTRUM HYDRARGYRI.

℞ Hydrargyri purificati uncias tres,
Olei sulphurati fluidrachmam,
Emplastri Plumbi libram;

Hydrargyrum cum Oleo sulphurato tere, donec globuli non ampliùs conspiciantur; tum paulatim adjice Emplastrum Plumbi liquefactum, atque omnia misce.

EMPLASTRUM LYTTÆ.

℞ Lyttæ in pulverem subtilissimum tritæ libram,
Emplastri Ceræ libram cum semisse,
Adipis præparatæ libram;

Emplastro et Adipi simul liquefactis, et ab igne remotis, paulò antequàm concrescant, Lyttam insperge, atque omnia misce.

EMPLASTRUM OPII.

℞ Opii duri contriti unciam dimidiam,
Abietis Resinæ contritæ uncias tres,
Emplastri Plumbi libram;

Emplastro liquefacto Abietis Resinam et Opium adjice, et misce.

EMPLASTRUM PICIS COMPOSITUM.

℞ Picis aridæ libras duas,
Abietis Resinæ libram,
Resinæ flavæ,
Ceræ flavæ, singulorum uncias quatuor,
Myristicæ Olei expressi unciam;

Pici, Resinæ, et Ceræ simul liquefactis, primùm Abietis Resinam, dein Oleum Myristicæ, adjice, et omnia misce.

EMPLASTRUM PLUMBI.

℞ Plumbi Oxydi semivitrei in pulverem subtilissimum triti libras quinque,
Olivæ Olei congium,
Aquæ octarios duos;

Coque simul lento igne, assiduè movens, donec Oleum et Plumbi Oxydum in emplastri crassitudinem cöeant. Oportebit autem paululum Aquæ ferventis adjicere, si ea ferè omnis, quæ in principio adhibita est, ante finem coctionis fuerit absumpta.

EMPLASTRUM RESINÆ.

℞ Resinæ flavæ libram dimidiam,
Emplastri Plumbi libras tres;

Emplastro Plumbi, lento igne liquefacto, Resinam contritam adjice, et misce.

EMPLASTRUM SAPONIS.

℞ Saponis duri concisi libram dimidiam,
Emplastri Plumbi libras tres;

Emplastro liquefacto Saponem admisce; tum ad idoneam crassitudinem decoque.

CERATA.

CERATUM SIMPLEX.

℞ Olivæ Olei fluiduncias quatuor,
Ceræ flavæ uncias quatuor ;

Ceræ liquefactæ Oleum adjice, et misce.

CERATUM CALAMINÆ.

℞ Calaminæ præparatæ,
Ceræ flavæ, singulorum libram dimidiam,
Olivæ Olei octarium ;

Oleum cum Cerâ liquefactâ misce ; tum ab igne remove, et, ubi primùm lentescant, Calaminam adjice, et assiduè move, donec refrixerint.

CERATUM CETACEI.

℞ Cetacei unciam dimidiam,
Ceræ albæ uncias duas,
Olivæ Olei fluiduncias quatuor;

Cetaceo et Ceræ simul liquefactis Oleum adjice, et move, donec refrixerint.

CERATUM LYTTÆ.

℞ Cerati Cetacei drachmas sex,
Lyttæ in pulverem subtilissimum tritæ drachmam;

Cerato, igne emollito, Lyttam adjice, et misce.

CERATUM PLUMBI SUPERACETATIS.

℞ Plumbi Superacetatis contritæ drachmas duas,
Ceræ albæ uncias duas,
Olivæ Olei octarium dimidium;

Ceram in Olei fluidunciis septem liqua; tum his adjice paulatim Plumbi Superacetatem, cum reliquo Oleo separatim contritam, et spathâ ligneâ move, donec coierint.

CERATUM PLUMBI COMPOSITUM.

℞ Liquoris Plumbi Subacetatis fluiduncias duas cum semisse,
Ceræ flavæ uncias quatuor,
Olivæ Olei fluiduncias novem,
Camphoræ drachmam dimidiam;

Ceram liquefactam cum Olei fluidunciis octo misce; tum ab igne remove, et, ubi primùm lentescant, Liquorem Plumbi Subacetatis paulatim adjice, et assiduè move spathâ ligneâ, donec refrixerint. Denique cum his Camphoram, in reliquo Oleo liquatam, misce.

CERATUM RESINÆ.

℞ Resinæ flavæ,
Ceræ flavæ, singulorum libram,
Olivæ Olei octarium;

Resinam et Ceram lento igne simul liquefac; dein Oleum adjice, et Ceratum adhuc calens per linteum exprime.

CERATUM SABINÆ.

℞ Sabinæ Foliorum recentium contusorum libram,
Ceræ flavæ libram dimidiam,
Adipis præparatæ libras duas;

Adipi et Ceræ simul liquefactis Sabinæ Folia incoque; tum per linteum exprime.

CERATUM SAPONIS.

℞ Saponis duri uncias octo,
Ceræ flavæ uncias decem,
Plumbi Oxydi semivitrei contriti libram,
Olivæ Olei octarium,
Aceti congium;

Coque Acetum cum Plumbi Oxydo, lento igne, assiduè movens, donec in unum cöeant;

dein adjice Saponem, et iterùm simili modo coque, donec humor penitùs consumptus fuerit; denique cum his Ceram, ex Oleo priùs liquefactam, misce.

UNGUENTA.

UNGUENTUM CETACEI.

℞ Cetacei drachmas sex,
Ceræ albæ drachmas duas,
Olivæ Olei fluiduncias tres ;

Lento igne simul liquefacta assiduè move, donec refrixerint.

UNGUENTUM ELEMI COMPOSITUM.

℞ Elemi libram,
Terebinthinæ vulgaris uncias decem,
Sevi præparati libras duas,
Olivæ Olei fluiduncias duas ;

Elemi cum Sevo simul liquefac; tum ab igne remove, et his Terebinthinam et Oleum statim misce; deinde per linteum exprime.

UNGUENTUM HYDRARGYRI FORTIUS.

℞ Hydrargyri purificati libras duas,
Adipis præparatæ uncias viginti tres,
Sevi præparati unciam;

Tere primùm Hydrargyrum cum Sevo et exiguo Adipis, donec globuli non ampliùs conspiciantur; dein adjice Adipis quod reliquum est, et misce.

UNGUENTUM HYDRARGYRI MITIUS.

℞ Unguenti Hydrargyri fortioris libram,
Adipis præparatæ libras duas;

Misce.

UNGUENTUM HYDRARGYRI NITRATIS.

℞ Hydrargyri purificati unciam,
Acidi nitrici fluidrachmas undecim,
Adipis præparatæ uncias sex,
Olivæ Olei fluiduncias quatuor;

Hydrargyrum in Acido primùm liqua; dein liquorem adhuc calentem cum Adipe et Oleo, simul liquefactis, misce.

UNGUENTUM HYDRARGYRI NITRICO-OXYDI.

℞ Hydrargyri Nitrico-oxydi unciam,
Ceræ albæ uncias duas,
Adipis præparatæ uncias sex;

Ceræ et Adipi simul liquefactis adjice Hydrargyri Nitrico-oxydum in pulverem subtilissimum tritum, et misce.

UNGUENTUM HYDRARGYRI PRÆCIPITATI ALBI.

℞ Hydrargyri præcipitati albi drachmam,
Adipis præparatæ unciam cum semisse;

Adipi, lento igne liquefactæ, adjice Hydrargyrum præcipitatum, et misce.

UNGUENTUM LYTTÆ.

℞ Lyttæ in pulverem subtilissimum contritæ uncias duas,
Aquæ distillatæ fluiduncias octo,
Cerati Resinæ uncias octo;

Aquam cum Lytta decoque ad dimidium, et cola: Liquori colato immisce Ceratum, dein vaporet ad idoneam crassitudinem.

UNGUENTUM RESINÆ NIGRÆ.

℞ Resinæ nigræ,
Ceræ flavæ,
Resinæ flavæ, singulorum uncias novem,
Olivæ Olei octarium;

Liquefac simul, et per linteum exprime.

UNGUENTUM PICIS LIQUIDÆ.

℞ Picis liquidæ,
Sevi præparati, singulorum libram;

Liquefac simul, et per linteum exprime.

UNGUENTUM SAMBUCI.

℞ Sambuci Florum,
Adipis præparatæ, singulorum libras duas;

Adipi incoque Sambuci Flores, donec friabiles fiant; tum per linteum exprime.

UNGUENTUM SULPHURIS.

℞ Sulphuris sublimati uncias tres,
Adipis præparatæ libram dimidiam;

Misce.

UNGUENTUM SULPHURIS COMPOSITUM.

℞ Sulphuris sublimati libram dimidiam,
Veratri Radicis contritæ uncias duas,
Potassæ Nitratis drachmam,
Saponis mollis libram dimidiam,
Adipis præparatæ libram cum semisse;

Misce.

UNGUENTUM VERATRI.

℞ Veratri Radicis contritæ uncias duas,
Adipis præparatæ uncias octo,
Limonum Olei minima viginti;

Misce.

UNGUENTUM ZINCI.

℞ Zinci Oxydi unciam,
Adipis præparatæ uncias sex;

Misce.

LINIMENTA.

LINIMENTUM ÆRUGINIS.

℞ Æruginis contritæ unciam,
Aceti fluiduncias septem,
Mellis despumati uncias quatuordecim;

Liqua Æruginem in Aceto, et per linteum cola; dein, instillato melle, ad idoneam crassitudinem decoque.

LINIMENTUM AMMONIÆ FORTIUS.

℞ Liquoris Ammoniæ fluidunciam,
Olivæ Olei fluiduncias duas;

Agita simul, donec misceantur.

LINIMENTUM AMMONIÆ SUBCARBONATIS.

℞ Liquoris Ammoniæ Subcarbonatis fluidunciam,
Olivæ Olei fluiduncias tres;

Agita simul, donec misceantur.

LINIMENTUM CAMPHORÆ.

℞ Camphoræ unciam dimidiam,
Olivæ Olei fluiduncias duas;

Liqua Camphoram in Oleo.

LINIMENTUM CAMPHORÆ COMPOSITUM.

℞ Camphoræ uncias duas,
Liquoris Ammoniæ fluiduncias sex,
Spiritûs Lavandulæ octarium;

Liquorem Ammoniæ cum Spiritu misce; tum ex retortâ vitreâ, lento igne, distillet octarius; denique in his liqua Camphoram.

LINIMENTUM HYDRARGYRI.

℞ Unguenti Hydrargyri fortioris,
Adipis præparatæ, singulorum uncias quatuor,
Camphoræ unciam,
Spiritûs rectificati minima quindecim,
Liquoris Ammoniæ fluiduncias quatuor;

Camphoram primùm cum Spiritû tere, deinde cum Adipe et Unguento Hydrargyri; denique, instillato paulatim Liquore Ammoniæ, omnia misce.

LINIMENTUM SAPONIS COMPOSITUM.

℞ Saponis duri uncias tres,
Camphoræ unciam,
Spiritûs Rosmarini octarium;

Liqua Camphoram in Spiritû; dein Saponem adjice, et macera balneo arenæ, donec liquetur.

LINIMENTUM TEREBINTHINÆ.

℞ Cerati Resinæ libram,
Olei Terebinthinæ octarium dimidium ;

Liquefacto Cerato Oleum Terebinthinæ adjice, et misce.

CATAPLASMATA.

CATAPLASMA FERMENTI.

℞ Farinæ libram,
Cerevisiæ Fermenti octarium dimidium;

Misce, et calorem lenem adhibe, donec intumere cœperint.

CATAPLASMA SINAPIS.

℞ Sinapis Seminum,
Lini usitatissimi Seminum, singulorum contritorum libram dimidiam,
Aceti calidi quantum satis sit;

Misce, ut fiat Cataplasmatis crassitudo.

TABULA

OSTENDENS QUÂ RATIONE OPIUM, ET PRÆPARATA QUÆDAM EX ANTIMONIO, ARSENICO, ET HYDRARGYRO, IN MEDICAMENTIS QUIBUSDAM COMPOSITIS CONTINENTUR.

CONFECTIO Opii in granis circiter sex et triginta continet Opii granum.

Hydrargyrum cum Creta in granis circiter tribus continet Hydrargyri granum.

Linimentum Hydrargyri in drachmis circiter sex continet Hydrargyri drachmam.

Liquor Antimonii tartarizati in fluidrachmis quatuor continet Antimonii tartarizati granum.

Liquor arsenicalis in fluidrachmis duabus continet Oxydi Arsenici granum.

Liquor Hydrargyri Oxymuriatis in fluidunciis duabus continet Hydrargyri Oxymuriatis granum.

Pilulæ Hydrargyri in granis tribus continent Hydrargyri granum.

Pilulæ Hydrargyri Submuriatis compositæ in granis circiter quatuor continent Hydrargyri Submuriatis granum.

Pilulæ Saponis cum Opio in granis quinque continent Opii granum.

Pulvis Cornu usti cum Opio in granis decem continet Opii granum.

Pulvis Cretæ compositus cum Opio in scrupulis duobus continet Opii granum.

Pulvis Ipecacuanhæ compositus in granis decem continet Opii granum.

Pulvis Kino compositus in scrupulo continet Opii granum.

Unguentum Hydrargyri fortius in drachmis duabus continet Hydrargyri drachmam.

Unguentum Hydrargyri mitius in drachmis sex continet Hydrargyri drachmam.

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LONDINI:—TYPIS G. WOODFALL, ANGEL COURT, SKINNER STREET.

A TRANSLATION OF THE PHARMACOPŒIA OF THE ROYAL COLLEGE OF PHYSICIANS, OF LONDON.

1824.

WITH NOTES AND ILLUSTRATIONS.

BY

RICHARD PHILLIPS, F. R. S. L. & E. &c.

LECTURER ON CHEMISTRY IN THE LONDON INSTITUTION, AND ON PHARMACEUTIC CHEMISTRY IN THE THEATRE OF ANATOMY, WEBB-STREET, SOUTHWARK.

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ADVERTISEMENT.

In preparing the notes accompanying this Translation, my views have been chiefly directed to what I conceived to be the wants of the medical student, with the intention of offering him a concise explanation of the chemical changes which occur during the preparation of medicines,—of the qualities which indicate their perfection,—and of the means by which he may detect the adulterations to which they are subjected. They who know how small a portion of the time which the pupil has at his disposal, can be dedicated to the acquirement of chemical and pharmaceutical knowledge, will readily admit the propriety of removing, as much as possible, all impediments to his progress.

I have endeavoured to render the translation as literal as the circumstances of the case would allow, and but few liberties have been taken with the original; to those, however, who may compare the translation with it, I shall explain my reasons for deviating, in a few instances, from the alphabetical arrangement adopted by the College: under the head of *Alkalia et eorum Sales*, Potassæ Carbonas correctly precedes Potassæ subcarbonas; but my object being that of explaining the nature of the chemical compounds, and of describing the circumstances in which they differ from each other, I have, on this occasion, re-

versed the order, and have treated first of subcarbonate of potash, because the knowledge of its properties must be acquired, before those of the carbonate, into the composition of which it enters, can be understood.

I am very far from supposing that an acquaintance with the qualities of bodies, can lead *a priori* to that of their medicinal use; hence there is no circumstance on which to ground an opinion as to the comparative medicinal powers of protoxide and peroxide of antimony; but since it has been proved by experience, that the former is an active, and the latter a nearly inert substance, it follows that the medicinal properties of these oxides are connected with, and dependent upon, their chemical relations; this, therefore, is one among many instances in which chemical investigations are shewn to be intimately connected with pharmaceutical preparations; and hence, although my attention has been principally bestowed upon the learner, I flatter myself that the results of some of my experimental researches, may prove not totally devoid of interest even to those, who may long have been practitioners in medicine; I allude more particularly to what these researches have enabled me to say respecting the preparations of iron, especially as to the nature and quantity of oxide which they contain, both when prepared according to the direction of the College, and as usually met with in the shops: and I trust that the analyses and observations will be useful, not only in causing greater uniformity in the preparation of the medicines in question but also in guiding the practitioner to the selection of such as obviously, from their chemical properties, merit the greatest reliance.

It is of unquestionable importance that the medicines directed to be prepared by the College, should possess the requisite strength; but supposing the *liquor ammoniæ*

for example, to be prepared on the large scale, much stronger and at less expense than by the Collegiate process, there cannot, I conceive, be any objection to its being used, when it has been so diluted with water as to reduce it to the standard strength. So also, in preparing the carbonate of potash, provided a perfect salt be obtained, it must be indifferent to the College, whether the carbonic acid is evolved from the decomposition of marble by sulphuric acid, or by using muriatic acid, as I have suggested, with chalk; consistently with these views there will be found interspersed among the remarks that I have offered, some hints which may, I think, not be useless to the practical chemist.

With respect to the diagrams, of which I have made so much use, I shall offer a few words in explanation; it is to be understood that the new compounds formed during a process, or constituents assuming a fresh state, are denoted by being printed in italics: thus a solution of sulphate of soda being mixed with one of nitrate of lime, the new compounds formed are *sulphate of lime* and *nitrate of soda*, and supposing one of the resulting substances to be a solid, that is generally placed at the bottom of the diagram. When nitric acid is added to carbonate of lime, the carbonic acid assumes a fresh state, and in this case it is thus described—carbonic acid *gas*; the only change which it undergoes, being from the state of solid combination, to that of an uncombined elastic fluid.

There is one curious and interesting department of science which has been much and long neglected, I mean that of the crystalline forms of salts; and in order to ascertain that hitherto it has been in a very imperfect state, it will be sufficient for the reader to compare the statements of the most respectable chemical writers. With one exception, noticed in its proper place, I am

indebted for all that I have given upon this subject to my friend Mr. Brooke, and to the papers which he has contributed to the 'Annals of Philosophy;' I feel confident that in the path which he is yet pursuing, he will meet with facts that will enrich chemical science with much curious and useful information.

Well knowing how necessary it is that the student should be acquainted with the powers and doses of preparations, I have generally given an account of them: but not being a medical practitioner, the best authorities on the subject have been consulted and quoted, and I need do no more to inspire confidence in this statement than to observe, that, with few exceptions, I am indebted for them to Dr. Paris's 'Pharmacologia,' and I have great pleasure in acknowledging his friendly assistance on various occasions connected with this translation. In justice to Mr. A. T. Thomson, it is proper to state that I have, in some instances, advantageously consulted his London Dispensatory.

RICHARD PHILLIPS.

41, *Nelson Square,*
Great Surrey Street,
March, 1824.

PREFACE TO THE EDITION OF 1809,

(From Sir G. Tuthill's Translation.)

After an interval of scarcely two and twenty years, we have resolved again to revise our Pharmacopœia. This labour has been imposed upon us by the improved state and daily cultivation of Natural Science, which has within that short period been freed from so much error, illustrated by so many experiments, and established upon principles so much more firm and profound than before, that should Medicine alone of all its branches be suffered to remain stationary and neglected, we might justly incur discredit; especially, when of the two other sciences Chemistry and Botany, which are most closely allied to our own, the latter has explored with immense labour the vegetable productions of every climate, and the former has ameliorated its whole system and taught us to speak a language entirely new. There seemed, therefore, to be no excuse for delaying any longer a most diligent inquiry into the nature and powers of all our preparations, so that we might reject any, if any such there be, which we should think either obsolete or superfluous.

Our immediate predecessors have indeed very much contributed to render the processes of Pharmacy more certain and expeditious; for in their time the dawn of modern Philosophy had appeared, dispelling the clouds of former systems, removing their groundless apprehensions with the darkness they spread, and, finally, opening the secret recesses of nature so far as to show clearly, what was incongruous, and what was accordant; what substances were at variance with each other, and what might be best associated together in composition. But such is the condition of art, that it admits only of improvement, not of perfection.

Hence, therefore, the science of Medicine has annually made some progress; nor has the present age been wanting in its endeavours to carry further what the former had begun, for it has described with greater accuracy the symptoms of some diseases, and has discovered more suitable remedies for others; it has rejected some medicines which were useless and ineffectual, and by experience and authority has established others of greater powers; it has also examined the whole with more accuracy, and taught more scientific methods of compounding them. When, therefore, we first began to revise this work we discovered many things which but ill accorded with the present more perfect state of our art; still more which were at variance with the improved system of nomenclature devised by philosophers of later times; and some which it became necessary to add for the sake of greater order and exactness in the work itself. We have been fully aware, however, of the great inconvenience and danger which arise from frequent changes in Pharmacopœias; but we have also felt that whatever accords most closely with true science will in the end become most firmly established and most useful. Under this

impression we resolved, as far as could be done, to affix to medicines those names which are correct, and which accord with the nature of each, taking care at the same time that the length of the titles should not prove inconvenient to the prescriber. If, therefore, in order to express clearly the composition of any preparation, a number of words became necessary, we have preferred a more simple appellation, even though less scientific.

With respect to ourselves, we have spared no pains to render the present edition as perfect as possible. Not that we dare to imagine that it will satisfy every inquirer, or that it is free from errors; but before any one proceeds to criticise these with severity, we entreat him to reflect upon the diversity and difficulty which a work of this kind involves, and we trust he will not then be offended with a few faults which may occur.—But on this point enough has been said.

Some terms which are employed require a more earnest apology, since they may seem to deviate more than was necessary from common usage, such as *Anthemis;* or to sound harshly and barbarously, as *Potassa:* upon the admission of these we for some time paused; but what could be done against the authority of all the naturalists of the present day; or with what propriety could we alone retain names of animals, vegetables, and minerals, which the chief writers in this branch of science had applied to substances entirely dissimilar? We have therefore thought it better to risk the accusation of barbarism, than to admit terms of doubtful or uncertain signification, or to dissent in a few names only from the established practice of chemists.

With respect to the change which we have determined upon making in the measures of liquids, we do not fear

the imputation of having done it from an affectation of novelty, since it has long been considered as necessary. The affixing of the same names to measures of liquids and to weights of solids very frequently produced mistakes. We have not ventured to alter the measure called a *Gallon*, the capacity of which is defined by the statutes of the realm; but we have deemed it to be not only lawful, but our positive duty, to divide this into parts, and to affix names to each, according to our own judgment.

Moreover, we hope we have followed that method in the prosecution of the work which is best suited to the subject of it; and it will be the most agreeable reward we can receive for the care and labour we have bestowed, if they shall be found to contribute to the public good, and to point out more certain remedies for the cure or alleviation of diseases.

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CORRIGENDA.

Page 77, last line, *for* ʒ ss to ʒ iss, *read* ℥ ss to ℥ iss.
80, line 17, *for* decomposeed, *read* decomposed.
80, line 32, *for* acid, *read* acids.
164, line 2, *for* cinchonia, *read* cinchona.
200, line 9, *for* f℥ ij to f℥ iv, *read* fʒ ij to fʒ iv.
201, last line but one, *for* Lavendulæ, *read* Lavandulæ.

THE

LONDON PHARMACOPŒIA.

WEIGHTS, MEASURES, &c.

TWO kinds of weights are used in England, one in the valuation of gold and silver, and the other in that of almost every other sort of merchandise; we employ the former, which is also called *Troy-Weight*, and divide the pound in the following manner, viz.

The pound lb.	contains	Twelve ounces	℥
—— ounce		Eight drachms	ʒ
—— drachm		Three scruples	℈
—— scruple		Twenty grains	gr.

We have added the signs by which every weight is usually designated.

In the measuring of fluids there is also a difference in measure, one appropriated to beer, and the other to wine; we adopt the latter, and employ a measure for fluids derived from the wine gallon.

The wine gallon is defined by the statutes of the kingdom, and for medicinal purposes we divide it as follows, viz.

The gallon	contains	Eight pints	O
—— pint		Sixteen fluidounces	f℥
—— fluidounce		Eight fluidrachms	fʒ
—— fluidrachm		Sixty minims	♏

We have added the signs by which we designate every measure.*

Care is to be taken, that neither copper nor lead enter into the composition of the substances of which mortars, measures, funnels or other vessels are made, in which medicines are either prepared or kept; on this account earthen vessels glazed with lead are improper.

Acid, alkaline, earthy and metallic preparations, and also salts of every kind, ought to be kept in stopped glass bottles.

We measure the degree of heat by Fahrenheit's thermometer, and when we direct a *boiling heat*, we mean that of 212°. A *gentle heat* denotes a temperature between 90° and 100°.

Whenever *specific gravity* is mentioned, we suppose the substance treated of to be of the temperature of 55°.

A *water bath* is that by which any substance contained in a proper vessel is heated, either by immersion in boiling water, or by exposure to steam.

A *sand bath* is made of sand to be gradually heated, in which any thing is placed contained in a proper vessel.

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* That error may not arise from the indiscriminate use of the same terms to denote both weights and measures, we have, after deliberation, devised certain new ones, which a little practice will render familiar.

We also measure the smallest portions of fluids in a glass measure, marked at equal distances; for the number of drops is fallacious and uncertain, since it requires nearly twice as many drops of any tincture, as it does of water, to fill the same measure.

MATERIA MEDICA.

In the second column, *Vegetables* are named according to Willdenow's edition of the Species Plantarum of Linnæus; *Animals*, according to Gmelin's edition of the Systema Naturæ of Linnæus, and *Chemical Substances*, according to modern nomenclature, unless it be otherwise expressed.

Abiĕtis Resīna, *Resin of the Spruce Fir.*	Pīnus Abies, *The concrete Resin.*
Absinthĭum, *Common Wormwood.*	Artemisĭa Absinthĭum.
Acācĭæ Gummi, *Acacia Gum (Gum Arabic).*	Acācĭa vēra, *The Gum.*
Acĕtōsæ Folĭa, *Leaves of Sorrel.*	Rumex Acĕtōsa, *The Leaves.*
Acetŏsella, *Woodsorrel.*	Oxălis Acetŏsella.
Acētum, *Vinegar.*	
Acĭdum Acētĭcum fortius. The *specific gravity* is to that of distilled water as 1,046 to 1,000. Eighty seven grains of crystallized subcarbonate of soda are saturated by 100 grains of this acid.	Acĭdum Acētĭcum, é ligno destillatum. *Acetic Acid distilled from Wood.*
Acĭdum Cītrĭcum *Crystalli,* *Crystals of Citric Acid.*	
Acĭdum sulphūrĭcum, *Sulphuric Acid.* Its *specific gravity* is to that of distilled water, as 1,850 to 1,000.	

Aconīti Folĭa, *Leaves of Monk's hood.*	Aconītum Napellus, *The Leaves.*
Adeps, *Hog's Lard.*	Sus Scrōfa, *The Lard.*
Ærūgo, *Verdigris.*	Subacētas Cupri impūra, *Impure Subacetate of Copper*
Allĭi Rādix, *Root of Garlic.*	Allĭum satīvum, *The Root.*
Alŏës spicātæ Extractum, *Extract of spiked Aloe (Socotrine Aloes).*	Alŏë spicāta, *The Extract.*
Althææ Folĭa et Radix, *Leaves and Root of Marsh-mallow.*	Althæa officinālis, *Leaves and Root.*
Alūmen, *Alum,*	Supersulphas Alumīnæ et Potassæ,
Ammoniăcum, *Gum Ammoniac.*	Heraclĕum Gummifĕrum, *The Gum Resin.* WILDENOW, *Hort. Berol.*
Ammōnĭæ Mūrĭas, *Muriate of Ammonia.*	Murias Ammōnĭæ,
Amygdălæ amāræ, *Bitter Almonds.* Amygdălæ dulces, *Sweet Almonds.*	Amygdălus commūnis, Var. γ. Var. β. *The Kernels.*
Amy̆lum, *Starch.*	Tritĭcum hybernum, *Wheat Starch.*
Anēthi Semĭna, *Dill Seeds.*	Anēthum grăveŏlens, *The Seeds.*
Anīsi Semĭna, *Anie Seeds.*	Pimpĭnella Anīsum, *The Seeds.*
Anthemĭdis Flōres, *Flowers of Chamomile.*	Anthĕmis nobĭlis, *The single Flowers.*
Antimōnĭi Sulphŭrētum, *Sulphuret of Antimony.*	Sulphŭrētum Antimōnĭi,
Antimōnĭi Vĭtrum, *Glass of Antimony.*	Antimōnĭi oxy̆dum sulphŭrētum vĭtrificātum, *Vitrified sulphuretted oxide of Antimony.*
Argentum, *Silver.*	Argentum purificātum, *Purified Silver*
Armoracĭæ Radix, *Root of Horseradish.*	Cochleārĭa Armoracĭa, *The Root.*

Arsenĭcum album, *White Arsenic.*	Acĭdum Arseniōsum, *Arsenious Acid.*
Asări Folĭa, *Leaves of Asarabacca.*	Asărum Eurōpœum, *The Leaves.*
Assafœtĭdæ Gummi-resīna, *Gum Resin of Assafœtida.*	Ferŭla Assafœtĭda, *The Gum Resin.*
Avēnæ Semĭna. *Oats.*	Avēna satīva, *The Seeds deprived of their husks (Grits.)*
Aurantĭi Baccæ, *Seville Oranges.*	Cītrus Aurantĭum (Hispalense), *The Fruit.*
Aurantĭi Cortex, *Orange Rind.*	*The outer Rind of the Fruit.*
Balsămum Peruviānum, *Peruvian Balsam.*	Myroxȳlon Peruifĕrum, *The Balsam.*
Balsămum Tolutānum, *Balsam of Tolu.*	Toluifĕra Balsămum, *The Balsam.*
Bellădonnæ Folĭa. *Leaves of the deadly Nightshade.*	Atrŏpa Bellădonna, *The Leaves.*
Benzŏĭnum, *Benzoin.*	Stȳrax Benzŏin, *The Balsam.*
Bismūthum, *Bismuth.*	
Bistortæ Radix, *Bistort Root.*	Polygŏnum Bistorta. *The Root.*
Cajŭpūti Olĕum, *Cajuput Oil.*	Melăleuca Cajupūti, *The essential Oil.*
Calamīna, *Calamine.*	Carbōnas Zinci impūra. *Impure Carbonate of Zinc.*
Calămi Radix, *Root of the Sweet Flag.*	Acŏrus Calămus, *The Root.*
Calumba,	Coccŭlus palmātus, *The Root.* DE CANDOLLE. *Sys. Nat.*
Cambōgĭa, *Gamboge.*	Stalagmītis Cambogĭŏides, *The Gum-Resin.*
Camphŏra, *Camphor.*	Laurus Camphŏra, *A peculiar concrete obtained by sublimation.*
Canellæ Cortex, *Canella Bark.*	Canella alba, *The Bark.*

Canthăris, *Cantharides.*	Canthăris vesicatoria, LATREILLE. *Gen. Insect.*
Capsĭci Baccæ, *Berries of Capsicum (Cayenne Pepper).*	Capsĭcum annŭum, *The Berries.*
Carbo Ligni, *Charcoal (fresh burnt).*	Carbo Ligni recens.
Cardămīnes Flores, *Cuckoo-flower* (or *Ladies'-smock).*	Cardămīne pratensis, *The Flowers.*
Cardămōmi Semĭna, *Seeds of Cardamom.*	Elettarĭa Cardamōmum, *The Seeds.*
Carĭcæ Fructus, *Figs.*	Ficus Carĭca, *The dried fruit.*
Carŭi Semĭna, *Carraway Seeds.*	Carum Carŭi, *The Seeds.*
Carȳŏphilli, *Cloves.*	Eugēnia caryophillāta, *The Buds dried.*
Carȳophillōrum Olĕum, *Oil of Clovss.*	*Their essential Oil.*
Cascărillæ Cortex, *Cascarilla Bark.*	Crōton Cascărilla, *The Bark.*
Cassĭæ Pulpa, *Cassia Pulp.*	Cassĭa Fistŭla, *The Pulp of the Pods.*
Castorĕum, *Castor,* (*Russian*).	Castor Fiber (*Rossicus*), *A peculiar Concrete.*
Catĕchu Extractum, *Extract of Catechu.*	Acācĭa Catĕchu, *The Extract.*
Centaurĭi Cacūmĭna, *Tops of the Centaury.*	Chironĭa Centaurĭum, *The Tops.*
Cera alba, *White Wax.*	
Cera flava, *Yellow Wax.*	
Cerevisĭæ Fermentŭm, *Yeast.*	
Cetācĕum, *Spermaceti.*	Physēter macrocephălus, *A peculiar concrete substance.*
Cinchōnæ cordifolĭæ Cortex, *Bark of heart-leaved Cinchona* (*yellow Bark*).	Cinchōna cordifolĭa, *The Bark.*

Cinchōnæ lancifolĭæ Cortex,	Cinchōna lancifolĭa,
Bark of lance-leaved Cinchona (pale Bark).	*The Bark.*
Cinchōnæ oblongifolĭæ Cortex,	Cinchōna oblongifolĭa,
Bark of oblong-leaved Cinchona (red Bark).	*The Bark.*
Cinnămōmi Cortex,	Laurus Cinnamōmum,
Bark of Cinnamon.	*The inner Bark.*
Cinnămōmi Olĕum,	
Oil of Cinnamon.	*Its essential Oil.*
Coccus,	Coccus Cacti.
Cochineal.	
Colchĭci Radix, et Semĭna,	Colchĭcum autumnāle,
Root and seeds of meadow Saffron.	*The fresh root and seeds.*
Colocynthĭdis Pulpa,	Cŭcŭmis Colŏcynthis,
Pulp of the bitter Apple.	*Pulp of the Fruit.*
Conīi Folia et Semĭna,	Conīum macŭlātum,
Leaves and seeds of Hemlock	*The Leaves and Seeds*
Contrăjervæ Radix,	Dorstēnĭa Contrăjervæ,
Root of Contrayerva.	*The Root.*
Copaiba,	Copaifĕra officinālis,
Copaiva.	*The liquid Resin.*
Corĭandri Semĭna,	Coriandrum satīvum,
Coriander Seeds.	*The Seeds.*
Cornŭa,	Cervus Elăphus,
Horns (of the Stag).	*The Horns.*
Crēta,	Carbōnas Calcis friabĭlis.
Chalk.	*Friable Carbonate of Lime.*
Croci Stigmăta,	Crocus satīvus (Anglĭcus),
Saffron.	*The Stigmata.*
Cubēba,	Pīper Cubēba,
Cubebs.	*The Berries.*
Cumīni Semĭna,	Cumīnum Cymīnum,
Cumin Seeds.	*The Seeds.*
Cupri Sulphas,	Sulphas Cupri.
Sulphate of Copper.	
Cuspārĭæ Cortex,	Cuspārĭa febrifŭga,
Cusparia or *Angustura Bark*	*The Bark.*
Cydōnĭæ Semĭna,	Pyrus Cydōnĭa,
Quince Seeds.	*The Seeds.*

Dauci Radix,	Daucus Carōta (hortensis),
Garden Carrot Root.	*The Root.*
Dauci Semĭna,	Daucus Carōta (agrestis),
Wild Carrot Seeds.	*The Seeds.*
Digitālis Folĭa et Semĭna,	Digitālis purpurĕa,
Leaves and Seeds of purple Foxglove.	*The Leaves and Seeds.*
Dolĭchi Pubes,	Dolĭchos prurĭens,
Cowhage.	*The Bristles of the Pods.*
Dulcamāræ Caulis,	Solānum Dulcamāra,
Stalk of Bittersweet, or woody Nightshade.	*The Stalk.*
Elaterĭi Poma,	Momōrdica Elaterĭum,
Fruit of the wild Cucumber.	*The fresh Fruit.*
Elĕmi,	Amÿris Elemifĕra,
Elemi.	*The Resin.*
Euphorbĭæ Gummi-resīna,	Euphorbĭa officinārum,
The Gum-Resin of Euphorbium.	*The Gum-Resin.*
Farīna,	Tritĭcum hybernum,
Flour.	*The Flour.*
Ferrum,	Ferri Ramenta et Fila,
Iron.	*Iron Filings and Wire.*
Filĭcis Radix,	Aspidĭum Filix mas, SMITH. *Flor: Brit.*
Root of the male Fern.	*The Root.*
Fœnicŭli Semĭna,	Anēthum Fœnicŭlum,
Seeds of Fennel.	*The Seeds.*
Fucus,	Fucus vesicŭlōsus.
Sea-wrack, or bladder Fucus	
Galbăni Gummi-resīna,	Bubon Galbănum,
Gum-resin of Galbanum.	*The Gum-resin.*
Gallæ,	Cynips Quercûs folĭi,
Galls.	*The Nest.*
Gentiānæ Radix,	Gentiāna lutĕa,
Root of Gentian.	*The Root.*
Glycyrrhīzæ Radix,	Glycyrrhīza glabra,
Root of Liquorice.	*The Root.*
Granāti Cortex,	Punĭca Granātum,
Bark of the Pomegranate.	*The Bark of the Fruit.*
Guaiăci Resīna et Lignum,	Guaiăcum officināle,
Resin & Wood of Guaiacum.	*Resin and Wood.*
Hæmatoxÿli Lignum,	HæmatoxÿlonCampechiānum
Logwood.	*The Wood.*

Helĕnium,	Inŭla Helĕnium,
Elecampane.	*The Root.*
Hellebŏri fœtĭdi Folĭa,	Hellebŏrus fœtĭdus,
Leaves of stinking Hellebore	*The Leaves.*
Hellebŏri nigri Radix,	Hellebŏrus niger,
Black Hellebore Root.	*The Root.*
Hordĕi Semĭna,	Hordĕum distĭchon,
Pearl Barley.	*The Seeds husked.*
Hūmŭli Strŏbĭli,	Hūmŭlus Lūpŭlus,
Hops.	*The dried Strobiles.*
Hydrargȳrum,	
Quicksilver.	
Hyoscyămi Folĭa et Semĭna,	Hyoscyămus nīger.
Leaves and Seeds of Henbane.	*Leaves and Seeds.*
Jalăpæ Radix,	Convolvŏlus Jalăpa,
Root of Jalap.	*The Root.*
Ipecacŭanhæ Radix,	Callicocca Ipecacŭanha,
Root of Ipecacuanha.	*The Root.*
Junipĕri Baccæ et Cacūmĭna,	Junipĕrus commūnis,
Juniper Berries and Tops.	*Berries and Tops.*
Kīno,	Pterocarpus Erinācea,
Kino.	*The Extract.* *Encycl. method.*
Kramērĭæ Radix,	Kramērĭa triandria,
Rhatany Root.	*The Root.* *Flor. Peruv.*
Lavandŭlæ Flores,	Lavandŭla Spica,
Flowers of Lavender.	*The Flowers.*
Lauri Baccæ et Folĭa,	Laurus nobĭlis,
Berries and Leaves of the Bay tree.	*Berries and Leaves.*
Līchen,	Līchen Islandĭcus.
Liver Wort.	*Iceland Moss.*
Limōnes,	Cītrus medĭca,
Lemons.	*The Fruit.*
Limōnum Cortex,	*Their exterior rind.*
Rind of Lemons.	
Limōnum Olĕum,	*The essential oil of the outer rind.*
Oil of Lemons.	
Līnum cathartĭcum,	Linum cathartĭcum,
Purging Flax.	
Līni usitatissĭmi Semĭna,	Linum usitatissĭmum,
Common Linseed.	*The Seeds.*

Magnēsĭæ Subcarbonas, *Subcarbonate of Magnesia.*	Subcarbonas magnēsĭæ
Magnēsĭæ Sulphas, *Sulphate of Magnesia.*	Sulphas Magnēsĭæ purificāta.
Malva, *Common Mallow.*	Malva sylvestris.
Manna, *Manna.*	Fraxĭnus Ornus, *The concrete Juice.*
Marmor album, *White Marble.*	Carbōnas Calcis dura, *Hard Carbonate of Lime.*
Marrubĭum, *White Horehound.*	Marrubĭum vulgāre.
Mastĭche, *Mastich.*	Pistacĭa Lentiscus, *The Resin.*
Mel, *Honey.*	
Mentha piperīta, *Peppermint.*	Mentha piperīta. SMITH, *in Act: Soc. Linn.*
Mentha virĭdis, *Spearmint.*	Mentha virĭdis. SMITH. *in Act: Soc. Linn.*
Menўanthes, *Buckbean.*	Menўanthes trifolĭāta.
Mezērĕi Cortex, *Bark of Mezereon.*	Daphne Mezērĕum, *The Bark of the Root.*
Mori Baccæ, *Mulberries.*	Morus nigra, *The Fruit.*
Moschus, *Musk.*	Moschus moschifĕrus, *A peculiar concrete.*
Myristĭcæ Nuclĕi, *Nutmegs.*	Myristica moschāta, *The Nuts and their expressed Oil.*
Myrrha, *Myrrh.*	*The Gum-resin of a tree not yet described.*
Olibănum, *Olibanum.*	Junipĕrus Lycĭa, *The Gum-resin.*
Olīvæ Olĕum, *Oil of the Olive.*	Olĕa Eurōpœa, *Expressed Oil of the Fruit.*
Opĭum, *Opium.*	Păpāver somnifĕrum, *The concrete Juice of the unripe Capsules (Turkey).*
Opopanăcis Gummi-resīna, *Gum-resin of Opopanax.*	Pastināca Opopănax, *The Gum-resin.*

Origănum, *Common Marjoram.*	Origănum vulgāre.
Ovum, *The Egg.*	Phasiānus Gallus, *The Eggs.*
Papavĕris Capsŭlæ, *Capsules of the White Poppy*	Papaver somnifĕrum, *The ripe Capsules.*
Petrōlĕum, *Petroleum.*	
Pimentæ Baccæ, *Pimenta Berries.*	Myrtus Pimenta, *The Berries.*
Pipĕris longi Fructus, *Fruit of long Pepper.*	Piper longum, *The unripe Fruit dried.*
Pipĕris nigri Baccæ, *Black Pepper Berries.*	Piper nigrum, *The Berries.*
Pix abĭetina, *Burgundy Pitch.*	Pinus Abĭes, *The prepared Resin.*
Pix liquĭda, *Tar.*	Pinus sylvestris, *The prepared liquid Resin.*
Pix nigra, *Black Pitch.*	Pinus Sylvestris, *The prepared solid Resin.*
Plumbi Subcarbōnas, *Subcarbonate of Lead.*	Subcarbōnas Plumbi.
Plumbi Oxўdum semivitrĕum, *Semi-vitrified Oxide of Lead.*	
Porri Radix, *Root of the Leek.*	Allĭum Porrum, *The Root.*
Potassæ Nitras, *Nitrate of Potash.*	Nitras Potassæ purificāta.
Potassæ Sulphas *Sulphate of Potash.*	Sulphas Potassæ.
Potassæ Supertartras, *Supertartrate of Potash.*	Supertartras Potassæ purificāta.
Potassa impūra *Impure Potash. (Pearlash.)*	Subcarbōnas Potassæ impura.
Prūna. *Prunes.*	Prunus domestĭca, *The dried fruit.*
Pterocarpi Lignum, *Red Saunders Wood.*	Pterocarpus santalīnus, *The Wood.*
Pulegĭum, *Pennyroyal.*	Mentha Pulegĭum.
Pyrēthri Radix, *Root of the Pellitory of Spain.*	Anthĕmis Pyrēthrum, *The Root.*

Quassĭæ Lignum, *Quassia Wood.*	Quassĭa excelsa, *The Wood.*
Quercûs Cortex, *Bark of the Oak.*	Quercûs pedunculāta, *The Bark.*
Risīna flava, *Yellow Resin.*	Pinus sylvestris, *The residue left after the Oil of Turpentine has been distilled.*
Resīna nigra. *Black Resin.*	Pinus sylvestris, *The prepared solid Resin.*
Rhamni Baccæ, *Buckthorn Berries.*	Rhamnus cathartĭcus, *The Berries.*
Rhēi Radix, *Root of Rhubarb.*	Rhēum palmātum, *The Root.*
Rhœădos Petăla, *Petals of the Red Poppy.*	Păpāver Rhœas. *The Petals.*
Ricĭni Olĕum et Semĭna, *Castor Oil and Seeds.*	Ricĭnus commūnis, *The Seeds, and the Oil expressed from them.*
Rosæ canīnæ Pulpa, *Pulp of the Dog Rose. (The Hip).*	Rosa canīna. *The expressed Pulp of the Berries.*
Rosæ centifolĭæ Petăla, *Petals of the Damask Rose.*	Rosa centifolĭa, *The Petals.*
Rosæ Galiĭcæ Petăla, *Petals of the Red Rose.*	Rosa Gallĭca, *The Petals.*
Rosmărīni Cacūmĭna, *Tops of Rosemary.*	Rosmarīnus officinālis, *The Tops.*
Rubĭæ Radix, *Madder Root.*	Rubĭa Tinctōrum, *The Root.*
Rutæ Folĭa, *Leaves of Rue.*	Ruta grăveŏlens, *The Leaves.*
Sabīnæ Folĭa, *Leaves of Savine.*	Junipĕrus Sabīna, *The Leaves.*
Sacchărum, *Moist Sugar.* Sacchărum purificātum *Refined Sugar.*	} Sacchărum officinale *Preparations from the expressed Juice.*
Sagăpēnum, *Sagapenum.*	*The gum-resin of a plant not yet described.*
Salĭcis Cortex, *Bark of the Willow.*	Salix Caprĕa, *The Bark.*

ambūci Flōres, *lowers of Elder.*	Sambūcus nigra, *The Flowers.*
apo dūrus, *Iard Soap.*	*Soap made of the Oil of Olives and Soda (Spanish Soap)*
apo mollis, *oft Soap.*	*Soap made of Oil and Potash.*
arsăpărillæ Radix, *loot of Sarsaparilla.*	Smīlax Sarsăpărilla, *The Root.*
assăfras Lignum et Radix, *Vood and Root of Sassafras.*	Laurus Sassăfras, *Wood and Root.*
cammonĕæ Gummi-resīna, *ium-resin of Scammony.*	Convolvŏlus Scammonĕa *The Gum-resin.*
cillæ Radix, *loot of the Squill.*	Scilla maritĭma, *The Root.*
enĕgæ Radix, *loot of Senega.* *Seneka, or Rattlesnake Root).*	Polygăla Senĕga, *The Root.*
ennæ Folĭa, *eaves of Senna.*	Cassĭa Senna, *The Leaves.*
erpentarĭæ Radix, *erpentary (or Virginian Snake Root).*	Aristōlochĭa Serpentarĭa, *The Root.*
evum, *Mutton) Suet.*	Ovis Arĭes, *The Suet.*
imărоubæ Cortex, *imarouba Bark.*	Quassĭa Simărouba, *The Bark.*
nāpis Semĭna, *Iustard Seeds.*	Sināpis nigra, *The Seeds.*
odæ Murĭas, *Iuriate of Soda.* *Common Salt).*	Murĭas Sodæ.
odæ Sub-bōras, *ub-borate of Soda.* *Borax).*	Sub-bōras Sodæ.
odæ Sulphas, *ulphate of Soda.*	Sulphas Sodæ.
oda impūra, *npure Soda. (Barilla.)*	Subcarbōnas Sodæ impūra.
artĭi Cacūmĭna, *room Tops.*	Spartĭum scopārium, *The Tops.*
igēlĭæ Radix, *oot of the Indian Pink.*	Spigēlia Marilandĭca, *The Root.*

Spĭrĭtus rectificātus, *Rectified Spirit.* *Its specific gravity is to that of Distilled Water as* 835 *to* 1,000.	
Spĭrĭtus tenuĭor, *Proof Spirit.* *Its specific gravity is to that of Distilled Water as* 930 *to* 1,000.	
Spongĭa, *Sponge.*	Spongĭa officinalis
Stannum, *Tin.*	*Tin Filings.*
Staphisāgrĭæ Semina, *Seeds of Stavesacre.*	Delphinĭum Staphisagrĭa, *The Seeds.*
Stramonii Semĭna et Folia, *Seeds and Leaves of Stramonium.*	Datūra Stramonium, *The Seeds and Leaves.*
Styrăcis Balsămum, *Balsam of Storax.*	Styrax officināle, *The Balsam.*
Succĭnum, *Amber.*	
Sulphur, *Sulphur.*	
Sulphur sublimātum, *Sublimed Sulphur.*	
Tabăci Folĭa, *Leaves of Tobacco.*	Nicotiāna Tabăcum, *The dried Leaves.* *(Virginian).*
Tamărindi Pulpa, *The Pulp of the Tamarind.*	Tamărindus Indĭca, *The pulp of the Pod.*
Taraxăci Radix, *Root of the Dandelion.*	Leontŏdon Taraxăcum, *The Root.*
Tartărum, *Tartar.*	Potassæ Supertartras impūra
Terebinthĭna Canadensis, *Canadian Turpentine.*	Pinus Balsamĕa, *The liquid Resin.*
Teberinthĭna Chīa, *Chio Turpentine.*	Pistācĭa Terebinthus, *The liquid Resin.*

Terebinthĭna vulgāris, *Common Turpentine.* Terebinthĭnæ Olĕum *Oil of Turpentine.*	Pinus sylvestris, *The liquid Resin and the Oil distilled from it.*
Testæ, *(Oyster) Shells.*	Ostrĕa edūlis, *The Shell.*
Tiglĭi olĕum, *Oil of Croton.*	Crōton Tiglĭum, *The Oil expressed from the Seeds..*
Tormentillæ Radix, *Root of Tormentil.*	Tormentilla officinālis, *The Root.*
Toxĭcŏdendri Folĭa, *Leaves of Sumach.*	Rhus Toxĭcŏdendron, *The Leaves.*
Tragăcantha, *Tragacanth.*	Astrăgălus vērus. OLIVIER. *Voy. dans l'Empire Ottom.* *The Gum.*
Tussilāgo, *Coltsfoot.*	Tussilāgo Farfăra.
Valeriānæ Radix, *Root of Valerian.*	Valeriāna officinālis, (sylvestris), *The Root.*
Verātri Radix, *Root of White Hellebore.*	Verātrum album, *The Root.*
Ulmi Cortex, *Bark of the Elm.*	Ulmus campestris, *The inner bark.*
Uvæ passæ, *Raisins.*	Vitis vinifĕra, *The dried fruit.*
Uvæ Ursi Folĭa, *Leaves of the Wortleberry.*	Arbŭtus Uva Ursi, *The Leaves.*
Zincum, *Zinc.*	Zincum.
Zingĭbĕris Radix, *Ginger Root.*	Zingĭber officināle, *The Root.*

PREPARATIONS AND COMPOUNDS.

ACIDS.

Acĭdum Acētĭcum Dilūtum.

Diluted Acetic Acid.

Take of Vinegar a gallon.

Let the acetic acid be distilled in a sand bath from a glass retort into a glass receiver kept cool; and having rejected the pint first distilled, reserve the six succeeding pints.

Malt Vinegar is a mixture of acetic acid, a little alcohol, mucilage, colouring matter, sulphuric acid, and water; by distillation it is rendered colourless and freed from sulphuric acid, but a considerable quantity of mucilage rises in distillation and is condensed with the acetic acid.

The strongest malt vinegar is termed *proof vinegar*, and by the manufacturer called No. 24. It is estimated to contain 5 per cent of real acetic acid, and the maker is allowed to mix one-thousandth of its weight of sulphuric acid with it. Of vinegar thus prepared 1000 grains should saturate 148 grains of crystallized subcarbonate of soda; the same quantity on the addition of muriate of barytes ought not to yield more than $2\frac{1}{2}$ grains of sulphate of barytes. If the vinegar should require a larger proportion of subcarbonate of soda for saturation, it will probably be found to arise from an excess of sulphuric acid, which may of course be determined by the quantity of sulphate of barytes precipitated. A fluidounce of the same vinegar should be saturated by $68\frac{3}{4}$ grains of crystallized subcarbonate of soda, and not afford more than $1\frac{1}{5}$ grain of sulphate of barytes.

The specific gravity of acidum aceticum dilutum, or distilled vinegar, prepared according to the directions above given, varies from 1007 to 1009; 1000 grains of the latter specific gravity, require for their saturation 145 grains of crystallized subcarbonate of soda.

The mucilage which rises in distillation with the acid, renders the use of it inconvenient for some purposes, especially in the preparation of certain acetates, that of potash for example. When distilled vinegar is saturated with the alkali, the solution becomes brown and deposits a dark precipitate, derived from the decomposition of the mucilage; this impurity it is difficult and tedious to separate, so as to obtain pure and white acetate of potash.

It is probably on account of the circumstance just mentioned that the College have now introduced acidum aceticum fortius (è ligno destillatum) into the Materia Medica; its specific gravity is stated to be 1·046, and 100 grains are said to saturate 87 of crystallized subcarbonate of soda: this acid is therefore precisely six times as strong as diluted acetic acid of sp. gr. 1·009; it follows of course that one pound, when mixed with five pounds of water will form a dilute acid equal in strength to distilled vinegar of sp. gr. 1·009.

I have not met with acetic acid of greater sp. gr. than 1·043;* 100 grains saturate $72\frac{1}{2}$ of crystallized subcarbonate of soda, and it is therefore exactly five times the strength of distilled vinegar of sp. gr. 1·009; and one pound mixed with four pounds of water, will form dilute acetic acid of that strength.

The impure acetic acid called pyrolignous acid, is obtained from the decomposition of wood, by heating it in iron cylinders. It is now prepared in large quantity, and is first purified in a slight degree by simple distillation, which separates a considerable quantity of viscid tarry matter; it is then saturated with lime, and the solution when evaporated to dryness, yields an impure acetate of lime, called pyrolignite of lime. This is decomposed in a proper apparatus by sulphuric acid, sulphate of lime remaining in the still, and the acetic acid passing over. Sometimes the pyrolignite of lime is previously decomposed by sulphate of soda, and the resulting acetate of soda, when treated with sulphuric acid, yields acetic acid and sulphate of soda.

Impurities and adulteration of Acetic Acid.—It is difficult entirely to free acetic acid, prepared from wood, from empyreumatic matter; when pure its taste and smell are merely acid, especially after dilution; it should remain colourless when mixed with sulphuric acid, and form a perfectly colourless salt when saturated with potash.

Acetic Acid may be impure from an accidental admixture of

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* Acid of this strength is prepared by Messrs. Champion & Green, of Old Street, in a state of great purity.

sulphurous acid; this, if not detected by the smell, may be discovered by adding a solution of acetate of lead, which will give a white precipitate of sulphite of lead. The acid may be adulterated with sulphuric acid; this will be detected by muriate of barytes: if muriatic acid have been mixed with it, nitrate of silver will give a precipitate insoluble in any acid; and, which is less probable, if nitric acid should have been added to it, it will furnish crystals of nitre when saturated with potash and evaporated.

If acetic acid have been condensed in a metallic worm, it may contain the oxides of tin and lead: the presence of the former may be determined by dropping in a solution of muriate of gold, and of the latter by means of a solution of sulphuretted hydrogen gas, which will afford a dark coloured precipitate if any lead be present. Vinegar which has been distilled in a common still, and condensed in a metallic worm, gives a black precipitate when saturated with ammonia, in preparing the Liquor Ammoniæ Acetatis; with the nature of this precipitate I am unacquainted, but it is probably a compound of some metallic oxide with the mucilage of the vinegar.

Composition of Acetic Acid.—Acetic Acid does not exist uncombined with water or a base. As it occurs in dry acetate of soda or potash, it is composed of

Hydrogen	4	or of,	2 atoms of Hydrogen	1×2 = 2
Oxygen	48	....	3 atoms of Oxygen	8×3 = 24
Carbon	48	....	4 atoms of Carbon	6×4 = 24
	100		Number representing its atom =	50

Fifty grains of real acetic acid saturate 153 grains of crystallized subcarbonate of soda; and it will appear by calculation, that acetic acid of the various degrees of strength now mentioned, consists of the annexed proportions of acid and water:

Acidum Aceticum dilutum. Sp. gr. 1·007.	Acetic Acid	3.42
	Water	96·58
		100
Acidum Aceticum dilutum. Sp. gr. 1·009.	Acetic Acid	4.73
	Water	95.27
		100.00

Acidum Aceticum fortius. Sp. gr. 1.043.	Acetic Acid	23.67
	Water	76.33
		100.00

Acidum Aceticum fortius. Sp. gr. 1.046.	Acetic Acid	28.43
	Water	71.57
		100.00

The following are the preparations in which the dilute and strong Acetic Acid are employed in the Pharmacopœia.

Acidum Aceticum dilutum. Liquor Ammoniæ acetatis. Liquor Plumbi subacetatis. Acetum Colchici. Acetum Scillæ. Oxymel Simplex. Oxymel Scillæ.

Acidum Aceticum fortius. Potassæ Acetas. Plumbi Acetas.

Medicinal Uses.—Acidum Aceticum dilutum is refrigerant, and may be advantageously administered in hæmorrhage; especially in cases where the acetate of lead has been given, since the solubility of this latter substance is increased by it. Externally, it may be a convenient adjunct to lotions containing lead.

Acidum Benzöicum.

Benzoic Acid.

Take of Benzoin a pound;

Put the Benzoin into a glass vessel placed in a sand bath, a heat of 300° being applied and gradually increased, sublime until nothing more rises; wrap that which has sublimed in bibulous paper, and press it that it may be separated from the oily part; then again sublime with a heat not exceeding 400°.

Benzöin is a resinous exudation from the *Styrax benzöe* of Sumatra; in the last edition of the Pharmacopœia, benzoic acid was directed to be prepared by boiling the benzoin reduced to powder with lime in water; the benzoate of lime obtained was decomposed by muriatic acid, and the benzoic acid thus precipitated was afterwards sublimed. The College have now re-

stored the process of 1787, and this change appears to be advantageous, for according to Brande, the quantity of acid obtainable by sublimation, is greater than that by the rejected process, in the proportion of 96 to 90: added to this it is much less troublesome and expensive.

Nature of the Process.—This process is perfectly simple: the benzoic acid existing in the benzoin is volatilized by a moderate heat, and condenses in the cool part of the apparatus; the oily matter from which it is directed to be separated, is formed by the decomposition of a part of the benzoin, and the fresh arrangement and combination of its elements.

Qualities of Benzoic Acid.—This acid when pure is crystallized in soft, colourless, feathery crystals; it is inodorous, although as generally met with it has a slight, but not disagreeable smell, owing to the imperfect separation of the empyreumatic oily matter. Its taste is rather acrid and sour, cold water dissolves it sparingly, it is more readily dissolved by boiling water, and in still greater quantity by alcohol; by exposure to the air the alcohol gradually evaporates, and prismatic crystals of the acid are formed. The aqueous solution reddens litmus paper but slightly, shewing that its acid property is but weak. Its saline compounds are termed benzoates.

Composition.—Benzoic acid is composed of about

Hydrogen	5
Oxygen	20
Carbon	75
	100.

The crystals contain no water.

Officinal Preparations.—Tinctura Camphoræ composita.

Medicinal Uses.—It is supposed to be stimulant and expectorant; but it is rarely used.

Acĭdum Cĭtrĭcum.

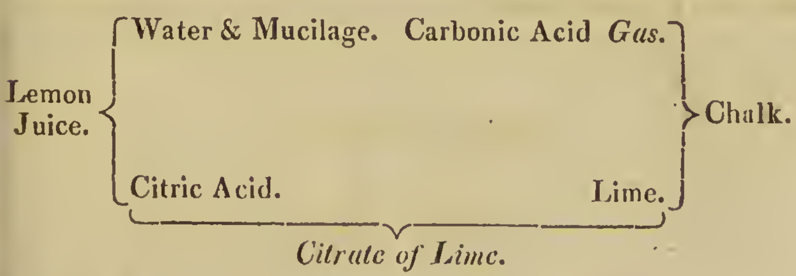
Citric Acid.

Take of Lemon Juice a pint,
Prepared Chalk an ounce, or as much as may be required to saturate the juice,
Diluted Sulphuric Acid nine fluidounces;

Add the chalk gradually to the lemon juice, and mix them; then pour off the fluid. Wash the citrate of lime which remains repeatedly with water; then dry it. Afterwards pour the diluted sulphuric acid upon the dried powder, boil for ten minutes, press the liquor strongly through a linen cloth, and filter it through paper. Evaporate the clear fluid with a gentle heat, so that as it cools, crystals may form.

To render these crystals pure, dissolve them a second and a third time in water, filter the solution through paper, evaporate, and set by to crystallize.

Process.—Lemon juice is an aqueous solution of citric acid mixed with mucilage, the latter preventing the acid from crystallizing, when the juice is merely evaporated. Chalk consists of carbonic acid and lime, and is termed carbonate of lime; when this is added to lemon juice, the citric acid, owing to its greater affinity for the lime, combines with it, and expels the carbonic acid in the state of gas. The citrate of lime formed, being but slightly soluble, remains undissolved, and the greater part of the mucilage is separated from it with the water. The citrate of lime when heated in diluted sulphuric acid is decomposed, on account of the more powerful affinity of sulphuric, than of citric acid, for lime. The sulphate of lime formed subsides, on account of its insolubility, in the state of a white powder, while the citric acid separated from the lime remains in solution, and by evaporation yields crystals. These operations may perhaps be rendered more intelligible by the annexed diagrams:



Solution of Citric Acid.

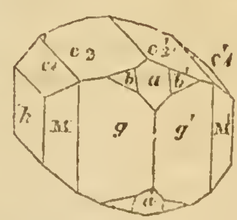
Citrate of Lime.	Citric Acid.	Water.	Diluted Sulphuric Acid.
	Lime.	Sulphuric Acid.	

Sulphate of Lime.

It appears to me that no advantage can be derived from drying the citrate of lime; I think it would be decomposed more readily while moist. Lemon juice probably varies considerably in strength; I found that 100 grains of the fresh juice, of sp. gr. 1·044, decomposed 14.8 grains of crystallized subcarbonate of soda, and as 153 grains of the salt are equivalent to 50 of carbonate of lime, one pint of lemon juice, weighing oz. 15. dr. 6½. will decompose a few grains more than dr. 6 of chalk; the citrate of lime formed requires about fluid oz. 4½ of diluted sulphuric acid for its decomposition; or for every drachm of chalk used, nearly fl. dr. 6 of the diluted acid must be employed; it is necessary to use this quantity of acid, even supposing any of the chalk to remain undecomposed by the lemon juice. Those who prepare citric acid on the large scale employ chalk which has been finely powdered, or whiting; it is not requisite that it should undergo the process of elutriation. Lemon juice of the strength above mentioned is almost precisely equal in strength to distilled vinegar of sp. gr. 1·009; 100 parts of the former decompose 14.8 grains of crystallized subcarbonate of soda, and a similar quantity of the latter 14.5 grains of the same salt.

Qualities.—Citric acid is colourless, inodorous, extremely sour; the primary form of the crystal is a *right rhombic prism*, but which usually exhibits the planes described in the annexed figure: M & M′ being the lateral primary planes.

M on M′	101°	30′
M on *h*	129	15
M on *g*	163	23
g on *g′*	134	45
a on *a′*	111	50
a on *b*	161	30
h on *c1*	139	45
h on *c2*	121	15
c1 on *c2*	161	30
c2 on *c′2*	117	30



By exposure to a damp atmosphere the crystals absorb moisture. An ounce of water at the temperature of 60°, dissolves about dr. 10 of crystallized citric acid, and when boiling, nearly twice its weight. The solution, like lemon juice, decomposes and becomes mouldy by keeping. One drachm of the crystals of this acid saturate almost exactly two drachms of crystallized subcarbonate of soda. Nine drachms and a half of citric acid, dissolved in a pint of distilled water, give a solution equal in strength to lemon juice.

The following table exhibits the equivalent proportions of crystallized citric acid, lemon juice, and solution of citric acid prepared as above, necessary for the decomposition of alkaline salts named :

A Scruple of	*Lemon Juice or Solution of Citric Acid.*	*Citric Acid.*
Carbonate of Potash	f ʒ iijss	gr. 15
Subcarbonate of Potash	f ʒ iiij	gr. 18
Subcarbonate of Ammonia	f ʒ vi	gr. 26

It is to be observed that in the above statements the carbonate of potash is considered as crystallized ; the subcarbonate as dry, but containing as it usually does, about 16 per cent. of water, and the subcarbonate of ammonia as semitransparent and moderately hard ; if it be opaque and powdery, the change is owing to the loss of ammonia, and its saturating power is consequently diminished, and to an uncertain extent.

Composition.—Citric acid, like the acetic, is a compound of oxygen, hydrogen, and carbon. The proportions are as follows :

Oxygen 55.18	or	Oxygen . . . 4 atoms	$8 \times 4 = 32$
Hydrogen . . 3.44		Hydrogen 2 ditto	$1 \times 2 = 2$
Carbon 41.38		Carbon . . . 4 ditto	$6 \times 4 = 24$
100.00		Weight of atom	$= 58$

In the crystallized state it consists of

Citric acid 76.32	or 1 atom acid	$= 58$
Water 23.68	2 atoms water	$9 \times 2 = 18$
100.00	Weight of atom	$= 76$

Incompatibles.—Citric acid is incompatible with all alkaline solutions and substances, converting them into citrates, as ammonia, potash, soda, lime, magnesia, barytes, &c. It decomposes the alkaline, earthy, and probably all the metallic carbonates, most acetates, the alkaline sulphurets and soaps. It is also incompatible with tartrate of potash, which it converts into citrate and supertartrate of potash.

Adulteration.—If it be mixed with any crystallized sulphate, or if it retain any accidental portion of sulphuric acid, the solution will give a precipitate with muriate of barytes, which is insoluble in muriatic acid. Tartaric acid being cheaper than citric, the former may be mixed with or substituted for the latter; tartaric acid will be detected by mixing a solution of the suspected acid with one of nitrate, muriate or sulphate of potash; if minute crystals be deposited, we may conclude that the acid in question contained tartaric acid, or consisted of it. This may be confirmed by saturating a little of the suspected acid with solution of potash, and boiling it with a dilute solution of muriate of platina; if tartaric acid be present a black precipitate of protoxide of platina will be formed.

Medicinal Uses.—It is employed as a refrigerant, combined with potash or ammonia in the proportions already stated. Half an ounce of lemon juice thus saturated is generally esteemed a dose.

Acĭdum Murĭatĭcum,

Muriatic Acid.

Take of dried Muriate of Soda, two pounds,
Sulphuric Acid *by weight*, twenty ounces,
Distilled water, a pint and a half;

First mix the acid with half a pint of the water in a glass retort, and to these, when cold, add the muriate of soda; pour the remainder of the water into a receiver; then, adapting the retort to it, let the muriatic acid distil into the water from a sand bath, the heat being gradually raised until the retort becomes red hot.

The specific gravity of muriatic acid is to that of distilled water as 1·160 to 1·000.

One hundred and twenty-four grains of crystallized subcarbonate of soda, are saturated by 100 grains of this acid.

Process.—The nature of common salt, and the production of muriatic acid, are explained by two theories, both of which I shall state, because, from the name of muriate of soda which the College retain for common salt, it would appear, that as a body, they have not adopted the generally received doctrines of Sir H. Davy on these subjects.

On the supposition that muriatic acid is an undecomposed body, the explanation of its production is the following: common salt or muriate of soda is a compound of muriatic acid and soda, and when it is mixed with the sulphuric acid, this, owing to its greater affinity for soda, expels the muriatic acid from it, which, being gaseous, and having considerable affinity for water, rises in the state of vapour with it, and is condensed in the receiver into liquid muriatic acid. The sulphuric acid and soda remain in the retort in the state of sulphate of soda.

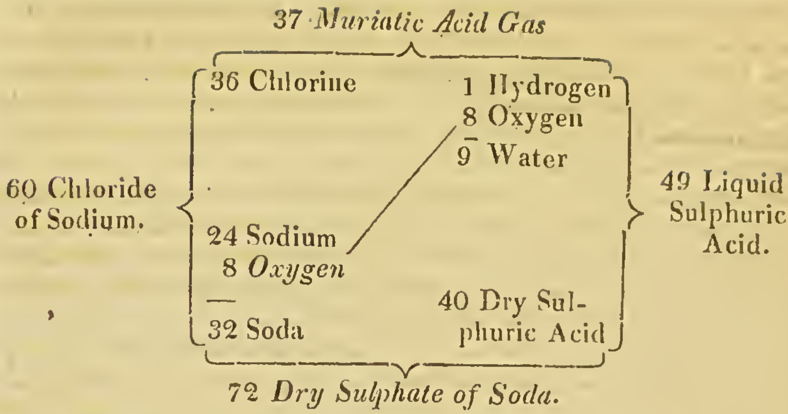
This process will be explained by the annexed diagram:

Liquid Muriatic Acid

Muriate of Soda.	Muriatic Acid.	Water.	Diluted Sulphuric Acid.
	Soda.	Sulphuric Acid.	

Dry Sulphate of Soda.

According to the opinion of Sir H. Davy, now generally adopted, common salt, or chloride of sodium, is a compound of 36 chlorine and 24 of the metallic body sodium; liquid sulphuric acid consists of 40 parts of dry acid and 9 of water, the water being composed of 1 of hydrogen and 8 of oxygen; when these quantities of common salt and liquid sulphuric acid act upon each other, the water and chloride of sodium are both decomposed; the 1 of hydrogen uniting with 36 of chlorine constitute 37 of muriatic acid gas, and the 8 of oxygen with the 24 of sodium form 32 of oxide of sodium or soda. The 37 of muriatic acid gas combining with the water used in diluting the acid, rise with it in the state of vapour, and by condensation in the receiver, liquid muriatic acid is produced; the 40 parts of dry sulphuric acid uniting with the 32 of soda, form 72 of dry sulphate of soda, which remain in the retort.



In preparing this acid, it is, I think, more convenient to mix the sulphuric acid and water in a separate vessel than in the retort; to introduce the salt first into the retort and to pour the acid upon it; and to put less water into the receiver and more into the retort.

Qualities.—Muriatic acid, when perfectly pure, is colourless; it emits white suffocating fumes, which turn vegetable blues red, its taste is strongly sour and acrid; when its sp. gr. is 1·160 as directed by the College, a fluidounce weighs about 527 grains; it is stated that 100 grains saturate 124 of crystallized subcarbonate of soda, which, from some indirect experiments, I believe to be not quite correct. By the French chemists it is termed hydrochloric acid, to express its nature. It acts upon and dissolves several metals with the evolution of hydrogen gas arising from the decomposition of water. Thus iron, zinc, and tin, are readily dissolved by it; it acts but slowly upon copper, but dissolves its oxides with facility. Its saline compounds are termed muriates, and most of them suffer decomposition when heated, as I shall explain when describing the properties of muriate of lime.

Composition.—Muriatic acid gas is composed of equal volumes of hydrogen gas and chlorine gas; and the combination takes place without alteration of volume. By weight it consists nearly of,

Hydrogen	2·7	or 1 atom of Hydrogen........	= 1
Chlorine	97·3	1 do. of Chlorine	= 36
	100·0	Number representing its atom	= 37

Liquid muriatic acid of sp. gr. 1·160 is composed of nearly 32·4 of muriatic acid gas and 67·6 water.

Adulteration.—This acid, as usually met with, has a yellow tinge, which is owing either to the presence of chlorine or of per-

oxide of iron; if the former be present, it may sometimes be determined by the smell, or by its power of dissolving gold leaf; the latter is detected by the addition of solution of ammonia, which, when added slightly in excess throws down the peroxide of iron of a reddish yellow colour. It sometimes also contains sulphuric acid; this is discoverable by adding a solution of muriate of barytes to a portion of the acid diluted with 4 or 5 parts of distilled water. This dilution is requisite, because the acid, when concentrated attracts the water from the solution of muriate of barytes, and causing it to crystallize, gives a fallacious appearance of the presence of sulphuric acid.

Incompatibles.—This acid is incompatible with alkalies, most earths, oxides and their carbonates; sulphuret of potash, tartrate of potash, tartarized antimony, tartarized iron, nitrate of silver, and solution of subacetate of lead.

Officinal Preparations.—Ferrum Ammoniatum. — Tinctura Ferri muriatis.

Medicinal uses.—According to Dr. Paris, it may be advantageously employed in malignant cases of scarlatina and typhus, and mixed with a strong infusion of quassia, he considers it to be the most efficacious remedy for preventing the generation of worms. Dose ♏ v.—xx. frequently repeated.

Acĭdum Nītrĭcum.

Nitric Acid.

Take of dried Nitrate of Potash,
Sulphuric acid, each *by weight*, two pounds;
Mix them in a glass retort, and distil the nitric acid in a sand bath, until a red vapour arises. Then, having added an ounce of dry nitrate of potash, distil the acid again in the same manner.

The specific gravity of nitric acid is to that of distilled water, as 1·500 to 1·000.

Two hundred and twelve grains of crystallized subcarbonate of soda, are saturated by 100 grains of this acid.

Process.—The quantities of sulphuric acid and nitrate of potash directed to be used, are so nearly in the proportion of two atoms of the former and one atom of the latter, that in explanation I shall so consider them. Ninety-eight parts of liquid sul-

phuric acid, consist of 80 of dry acid and 18 of water: 102 of nitrate of potash are composed of 54 of dry nitric acid and 48 of potash, and when these quantities of the acid and salt are heated together, double decomposition takes place; the 80 of dry sulphuric acid, (two atoms,) combine with 48 of potash, (one atom,) and form 128 of dry bisulphate or supersulphate of potash, which salt remains in the retort. The 54 of dry nitric acid (one atom) unite and rise with 18 of water (two atoms), and are condensed into a compound of 72 parts of liquid nitric acid of sp. gr. 1·500.

72 *Liquid Nitric Acid.*

98 Liquid Sulphuric Acid	18 Water	54 Dry Nitric Acid	102 Nitrate of Potash
	80 Dry Sulphuric Acid	48 Potash	

128 *Bisulphate of Potash.*

It is useless and inconvenient to mix an additional quantity of nitrate of potash with the nitric acid, and to re-distil it; for the acid procured never contains any sulphuric acid. It is correctly stated, that 100 grains of nitric acid saturate 212 of crystallized subcarbonate of soda, the theoretical quantity being only half a grain more. A fluidounce of the acid weighs about 1 oz. 3 dr. 1 scr.

Nitric acid of sp. gr. 1·500 is, I believe, the strongest procurable; and an atom of nitric acid requires two atoms of water for its condensation; but an atom of sulphuric acid takes only one, and this difference will explain the necessity of using so much sulphuric acid on account of the water it contains, when no means are provided for condensing the gaseous elements of nitric acid by passing them into water in a Woulfe's apparatus. This latter is the method practised by those who prepare this acid for manufacturing purposes, and they thus save half the expense of sulphuric acid.

Twenty-four ounces of nitrate of potash and an equal weight of sulphuric acid, the proportions ordered by the College, should yield, according to the diagram above given, very nearly 16 oz. 1 dr. 2 scr. of liquid nitric acid. I have never procured more than 15 oz. 6 dr. The deficiency, amounting to 3 dr. 2 scr., arises from the decomposition of nitric acid, and the loss unavoidable in the operation.

Qualities.—Liquid nitric acid, usually called merely nitric acid, is a dense colourless fluid; it emits white disagreeable

fumes; its taste is extremely sour and acrid, and the skin is indelibly tinged of a yellow colour by it. When exposed to the air it attracts water, for which it has considerable affinity; and when they are suddenly mixed, heat is evolved.

Nitric acid has usually a yellowish tint, owing to the presence of a small and unimportant quantity of nitrous acid, formed by the partial decomposition of a little of the nitric acid during its preparation. If the coloured nitric acid be moderately heated in a retort, nitric oxide is expelled, and it is rendered colourless. By exposure to light, and especially to the direct rays of the sun, nitric acid becomes first of a straw colour, and then of a deep orange; and this change is owing to the evolution of oxygen, and the consequent formation of nitrous acid. If concentrated, it does not act upon the metals at ordinary temperatures; but when a little water is added, most of them decompose a portion of it, and the water also; and combining with the oxygen of both, they are either oxidized and remain insoluble, or dissolved and converted into nitrates by the nitric acid remaining undecomposed; during this action nitric oxide gas (nitrous gas) is given out, which uniting with the oxygen of the air, forms red nitrous acid vapour. Nitric acid is decomposed by some combustible bodies with great rapidity, as by charcoal, phosphorus, and sugar.

Composition.—Dry nitric acid, as it exists in nitrate of potash and other nitrates destitute of water, is composed of nearly

Oxygen	74	or of 5 atoms of oxygen 8×5	= 40
Azote	26	1 atom of azote	= 14
	100	Weight of its atom	= 54

The elements of nitric acid are incapable of existing in the proportions above stated, unless combined with a salifiable base, as with potash, forming nitrate of potash, or with water constituting liquid nitric acid; this, when of the greatest strength, or of sp. gr. 1·500, is composed of

Nitric Acid	75	or of 1 atom of nitric acid	= 54
Water	25	2 atoms of water 9×2	= 18
	100	Weight of its atom	= 72

Adulteration.—If pure nitrate of potash be employed in the College process, the nitric acid obtained is perfectly free from all admixture except a little nitrous acid, which, as already noticed, is quite unimportant. The impurities usually occuring in the nitric acid of the shops, are the sulphuric and muriatic acids. The former is detected by muriate or nitrate of barytes,

after diluting the acid with 5 or 6 times its quantity of water. This dilution is requisite, for a reason already stated, when treating of muriatic acid. If muriatic acid be present, it is immediately discovered by adding a solution of nitrate of silver to the diluted acid, this occasioning a white precipitate of chloride of silver.

Incompatibles.—It has been already observed, that, when moderately diluted, this acid is readily decomposed by most metals; but it has no action upon platina or gold, and they, of course, do not decompose it. When mixed with muriatic acid, both suffer decomposition, and chlorine and nitrous acid result. The mixture is called aqua regia and nitro-muriatic acid, and it possesses the power of dissolving both platina and gold. The action of combustible bodies upon this acid has already been adverted to. It is incompatible with sulphate of iron; the protoxide of which decomposes it, and combining with its oxygen, becomes peroxide, and the colour of the solution changes from green to yellowish red. It acts strongly upon spirit of wine, and by their mutual decomposition nitric æther is formed. Oxides, earths, alkalies, and their carbonates, are incompatible with this acid, and sulphurets are decomposed by it. It decomposes the solutions of acetate of lead and of potash, expelling the acetic acid, and forming nitrate of lead and of potash.

Pharmaceutic uses.—Nitric acid is employed in several preparations; as, Argenti Nitras, Liquor Ferri Alkalini, Hydrargyri Nitrico-oxydum, Spiritus Ætheris Nitrici, and Unguentum Hydrargyri nitratis. It is sometimes employed externally as an escharotic. For other medicinal uses, see Diluted Nitric Acid.

Acĭdum Nĭtricum Dilūtum.

Diluted Nitric Acid.

Take of Nitric acid a fluidounce,
Distilled water nine fluidounces;
Mix them.

Composition.—One hundred grains of this diluted acid contain nearly 14·3 of the concentrated acid, and consequently saturate about 30⅓ grains of crystallized subcarbonate of soda; by weight, therefore, their respective strengths are to each

other almost exactly as 1 to 7: the specific gravity of the diluted acid is 1·080, and each fluidrachm contains nearly $8\frac{1}{2}$ grains of the concentrated acid, saturating 18 grains of crystallized subcarbonate of soda.

Medicinal use.—This acid is a very powerful antiphlogistic remedy, and is probably serviceable in restraining the progress of syphilis, when an impaired constitution or other circumstances render the exhibition of mercury improper. When sufficiently diluted, it forms an excellent lotion for old indolent ulcers. It is expectorant, and is occasionally used with success in counteracting the consecutive effects of opium. Dose ♏ x. to xl.

Acĭdum Sulphūrĭcum Dīlūtum.

Diluted Sulphuric Acid.

Take of Sulphuric acid a fluidounce and a half,
Distilled water fourteen fluidounces and a half;
Mix them, adding the acid to the water gradually.

Composition.—One hundred grains of sulphuric acid saturate 312 grains of crystallized subcarbonate of soda; and as 100 grains of the diluted acid of the Pharmacopœia contain 16 grains of the concentrated, they saturate nearly 50 of the subcarbonate; and a fluidrachm of the weak acid, containing 10 grains of the strong, will of course saturate 31 grains of the crystallized subcarbonate.

Medicinal uses.—It possesses the antiseptic and refrigerant virtues common to other acids; and it has astringent properties that render it a most valuable medicine in weakness and relaxation of the digestive organs, in colliquative sweats, and in internal hæmorrhage. See Infusion of Roses. Dose ♏ x. to xl.

Sulphuric acid, sometimes called liquid sulphuric acid, and often oil of vitriol, is a colourless, transparent, inodorous, corrosive fluid, of an oily consistence. Its specific gravity at 60° is to that of water as 1·8485 to 1000. If it exceed this, its purity may be suspected. Its acid properties are very strong, so that a single drop gives to a large quantity of water the power

of reddening vegetable blue colours; but when undiluted it has the property of turning vegetable yellow colours brown, as the alkalies do. Its boiling point is about 590°.

Sulphuric acid has great affinity for water. By exposure to the air, in an open vessel, it imbibes one-third of its weight in twenty-four hours, and more than six times its weight in a twelvemonth. When one part of water is suddenly mixed with four times its weight of sulphuric acid, both of the temperature of 50°, it is raised to 300°; but, according to Dr. Ure, the greatest heat is excited by mixing 73 parts of acid with 27 of water. The mixture of sulphuric acid and water always occupies less space than before combination, and the last-mentioned proportions more especially, for the highest temperature is always succeeded by the greatest condensation.

Concentrated sulphuric acid does not act upon the metals at ordinary temperatures; but at a boiling heat many of them decompose it, and are oxidized by combining with a portion of its oxygen, while sulphurous acid is given out in the gaseous state. When diluted, it readily dissolves those metals which decompose water by its agency, with the evolution of hydrogen gas, as iron and zinc; and it dissolves the oxides of most other metals. It readily combines with the alkalies and earths, and forms with them various important salts.

Most vegetable and animal substances decompose sulphuric acid, on account of the carbon they contain; and this renders the acid of a dark colour. Although sulphuric acid ought certainly to be colourless, yet the slight colour which it often acquires from the circumstance just mentioned, does not materially deteriorate its quality or reduce its strength.

Sulphuric acid acts upon alcohol; and the nature of the product depends upon the relative proportions employed. If three measures of the acid be heated in a retort, with one measure of alcohol, bicarburetted hydrogen gas is very plentifully evolved; but when the proportions are one measure of acid to two measures of alcohol, then sulphuric æther is formed.

Pharmaceutical uses.—Sulphuric acid is employed in preparing Acidum Citricum, Acidum Muriaticum, Acidum Nitricum, Acidum Tartaricum, Æther rectificatus, Antimonii Sulphuretum præcipitatum, Ferri Sulphas, Hydrargyri Oxymurias, Infusum Rosæ, Potassæ Carbonas, Sulphas and Supersulphas, Sodæ Carbonas and Sulphas, Zinci Sulphas.

Incompatibles.—All substances that combine with this acid are of course incompatible with it; such, as already mentioned, are most of the metals, their oxides, some of the earths, their

carbonates, and the alkaline carbonates. The solutions of acetate of lead and of muriate of lime, are decomposed by it, white precipitates of sulphate of lead and sulphate of lime being obtained. Its presence is detected by the action of barytic salts, with the base of which it forms sulphate of barytes, soluble only in concentrated sulphuric acid.

Adulteration.—Sulphuric acid always contains sulphate of lead, derived from the chambers in which it is manufactured, and some sulphate of potash: they generally amount to 3 or 4 per cent. When water is added to the acid, the sulphate of lead is precipitated in the state of white insoluble powder, from which the diluted acid should be poured off for use. If sulphate of potash should be fraudulently mixed with the acid, for the purpose of increasing its specific gravity, the best method of detecting it is to saturate the acid with ammonia, and expel the sulphate of ammonia formed, by putting it into a crucible and subjecting it to a red heat;—the sulphate of potash will remain in the crucible.

Acĭdum Tartarĭcum.

Tartaric Acid.

Take of Supertartrate of potash two pounds and a half,
Boiling distilled water three gallons,
Prepared chalk a pound,
Sulphuric acid a pound;

Boil the supertartrate of potash in two gallons of the distilled water, and add the prepared chalk gradually, until bubbles cease to be evolved; set by the mixture, that the tartrate of lime may subside; pour off the liquor, and wash the tartrate of lime frequently with distilled water, until it becomes tasteless. Then pour upon it the sulphuric acid, diluted with a gallon of boiling distilled water, and set it by for twenty-four hours, frequently stirring it. Strain the liquor, and evaporate it in a water-bath, in order that crystals may form.

Tartar, cream of tartar, or supertartrate of potash, called in correct terms bitartrate of potash, is a well known acidulous salt deposited from wine. It occurs in the state of small crystals, the form of which I shall give in a succeeding page.

Water dissolves it but very sparingly; but the solution reddens litmus paper.

Composition.—This salt is composed of tartaric acid and potash, the former being in sufficient quantity to saturate twice the actual quantity of the latter; and hence it is termed bi-tartrate. It consists of

Tartaric acid	70·15	or 2 atoms of tartaric acid ... 67 × 2	= 134
Potash	25·13	1 atom of potash	= 48
Water	4·72.	1 atom of water...............	= 9
	100·00	Weight of the atom	= 191

Process.—The excess of tartaric acid decomposes the carbonate of lime, carbonic acid being evolved in the gaseous state, and tartrate of lime is precipitated, owing to its insolubility. The bitartrate of potash thus losing one half of its acid, is reduced to the state of simple tartrate, and remains in the solution from which the tartrate of lime separates.

Bitartrate of Potash. { Tartrate of Potash. / Tartaric Acid } — { Carbonic Acid *Gas* / Lime } Chalk or Carbonate of Lime

Tartaric Acid + Lime → *Tartrate of Lime.*

The tartrate of lime thus formed, when mixed with diluted sulphuric acid, is decomposed owing to the superior affinity of the sulphuric acid for lime, and the sulphate of lime precipitating, the tartaric acid remains in solution:

Tartaric Acid + Water → *Solution of Tartaric Acid.*

Tartrate of Lime { Tartaric Acid / Lime } — { Water / Sulphuric Acid } Diluted Sulphuric Acid

Lime + Sulphuric Acid → *Sulphate of Lime.*

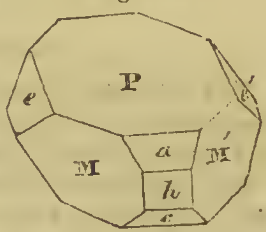
In the process adopted by the College only one half of the tartaric acid is procured; but, in order to prevent waste, the solution remaining after the formation of the tartrate of lime, should be evaporated to obtain crystals of tartrate of potash. (Vide Potassæ Tartras.) The excess of tartaric acid in the 30

ounces of the supertartrate, directed by the College, amounts to rather more than 10 oz. 4 dr., requiring nearly 8 oz. of carbonate of lime (chalk or whiting) for their conversion into tartrate of lime, and the tartrate of lime obtained, must be decomposed by 8 oz. by weight of sulphuric acid, diluted with water; or whatever may be the weight of the carbonate of lime, that of the sulphuric acid must be equal to it.

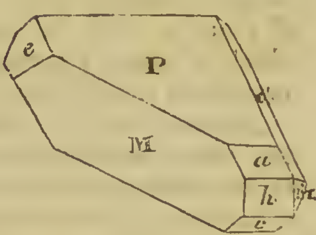
Qualities.—Tartaric acid is colourless, inodorous, and very sour to the taste; it occurs in crystals of considerable size, the primary form of which is *an oblique rhombic prism.*

Fig. 1 exhibits the crystal as usually modified, with the planes symmetrically placed. Fig. 2 exhibits the same modified form, with the planes irregularly disposed, as they appear in most of the crystals, the corresponding planes in both being marked with the same letters. This affords another instance of irregularity, which renders it not easy immediately to perceive the relations of the several planes to each other.

Fig. 1.



Fig, 2.



P on M, or M'	97°	10'
M on M'	88	30
P on *e* or *e'*.......	128	15
P on *a*...........	134	50
P on *h*...........	100	47

Tartaric acid does not deliquesce when exposed to the air, water at 60° dissolves about one fifth of its weight of it, and boiling water much more; the solution acts strongly upon vegetable blue colours; and becomes mouldy by keeping. At a high temperature tartaric acid is decomposed, sulphuric acid and nitric also decompose it, and by combining with a portion of the oxygen of the latter, it is converted into oxalic acid.

Supertartrate of potash when moistened with water, and tartaric acid when dissolved in it, readily act upon and dissolve those metals which decompose water, such as iron and zinc; the supersalt and acid also combine with the oxides of most other metals, the alkalies, and with many of the earths; they both decompose the alkaline and earthy carbonates, as subcarbonate of potash and of soda, carbonate of lime, &c.

Composition.—Tartaric acid uncombined with water, as it exists in tartrate of potash, is composed of

Oxygen....	59·70 or	5 atoms of oxygen..8 × 5 =	40
Hydrogen ..	4·48	3 atoms of hydrogen 1 × 3 =	3
Carbon	35·82	4 atoms of carbon ..6 × 4 =	24
	100·00	Weight of its atom =	67

In the state of crystals the acid consists of

Dry acid....	88·16 or	1 atom of acid.......... =	67
Water......	11·84 or	1 atom of water......... =	9
	100·00	Weight of its atom =	76

The saturating power of crystallized tartaric acid is exactly equal to that of crystallized citric acid; viz. 100 grains of the acid saturate 200 of crystallized subcarbonate of soda.

Incompatibles.—Tartaric acid, as already noticed, combines with alkalies and decomposes their carbonates; its effects are similar upon most earths and their carbonates, and it is therefore incompatible with them. It decomposes the salts of potash, when in solution, converting them into bitartrate, which is quickly precipitated in minute crystals; it also gives immediate precipitates with the salts of lime and of lead.

Adulteration.—If the acid have been carelessly prepared, it may then contain sulphuric acid in a state of mixture; this will be immediately detected, by the solution affording, with muriate of barytes, a precipitate insoluble in excess of muriatic acid.

Medicinal uses.—This acid being cheaper than citric acid, it is sometimes employed instead of it, especially in preparing what are called sodaic powders, used as substitutes for soda water. Supertartrate of potash is employed in the Pharmacopœia in preparing Potassæ tartras, Soda tartarizata, and Antimonium tartarizatum.

ALKALIES AND THEIR SALTS.

Lĭquor Ammōnĭæ.

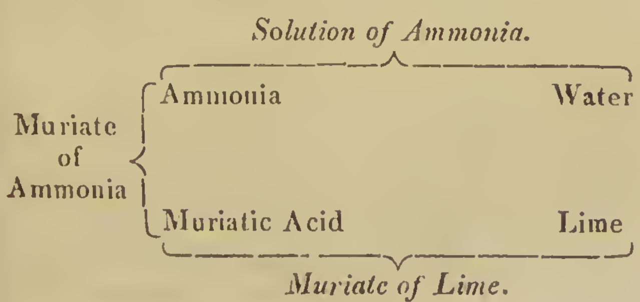
Solution of Ammonĭa.

Take of Muriate of Ammonia eight ounces,
Fresh lime six ounces,
Water four pints;

Pour a pint of the water upon the lime; then cover the vessel and set it by for an hour; afterwards add the muriate of ammonia and the remainder of the water boiling hot, and again cover the vessel; when the liquor is cold strain it; then distil twelve fluidounces of solution of ammonia into a receiver, the heat of which does not exceed 50 degrees.

The specific gravity of solution of ammonia is to that of distilled water as 0·960 to 1·000.

Process.—Muriate of ammonia, frequently called sal ammoniac, is a compound of muriatic acid and ammonia or the volatile alkali; when mixed with lime it is decomposed on account of the stronger affinity of muriatic acid for lime than for ammonia; until the mixture is subjected to distillation, it consists of ammonia and muriate of lime, with some excess of the earth; and when it is heated in the retort, the ammonia, being volatile, rises in the gaseous state, and combining with the water, they are together condensed in the receiver and form solution of ammonia. The muriate of lime, not being volatile, remains with a part of the water in the retort.



Ammoniacal gas is transparent, colourless, and of course invisible. Its sp. gr. compared with atmospheric air is as 0·5931 to 1·000, and 100 cubic inches weigh 18·08 grains; its smell is extremely pungent, and its taste acrid: an animal immersed in it is quickly killed; it extinguishes flame, but a taper is enlarged in it before it goes out. It is very rapidly condensed by water, and the solution, as well as the gas, possesses properties which are most distinctly alkaline, turning vegetable yellow colours brown, blues green, and by combining with acids it destroys their power of reddening vegetable blue colours. When subjected to a pressure of about 6·5 atmospheres at the temperature of 50°, ammoniacal gas was found by Mr. Faraday to become a colourless transparent fluid, having a sp. gr. of 0·760. The aqueous solution decomposes by exposure to the air, and still more readily by heat, the ammonia being dissipated in the elastic or gaseous form. When ammoniacal gas is mixed with oxygen gas, and fired by the taper, water is formed, and azotic gas left, and by being passed through a red hot porcelaine tube, it is resolved into hydrogen gas and azotic gas.

Composition.—Ammoniacal gas is composed of nearly

Hydrogen ..	17·64	or 3 atoms of hydrogen 1 × 3 =	3
Azote	82·36	1 atom of azote .... =	14
	100·00	Weight of its atom =	17

A solution of sp. gr. 0·960, as directed in the Pharmacopœia, is composed very nearly of

Ammoniacal gas ...	10
Water	90
	100

Incompatibles.—Liquor Ammoniæ is of course incompatible with all acids, and with the solutions in them of most earths and metals, but it does not decompose the saline solutions of barytes or lime.

Adulteration.—The only adulteration or rather impurity to be suspected in solution of ammonia, is a slight admixture of carbonate of ammonia; this will readily be detected by pouring it into lime water, or into a solution of muriate of lime, carbonate of lime will be then precipitated by double decomposition.

Officinal preparations.—Linimentum Ammoniæ, Spiritus Ammoniæ Succinatus, Linimentum Camphoræ compositum, Linimentum Hydrargyri.

Medicinal uses.—Liquor ammoniæ is stimulant, rubefacient, and antacid; it may be exhibited in milk, water, or any cold liquid which is not incompatible with it. Dose ♏ x. to ♏ xxx. If it should be swallowed by mistake, the best antidote is vinegar or lemon juice.

Ammōnĭæ Subcarbōnas,

Subcarbonate of Ammonia.

Take of Muriate of Ammonia a pound,
Prepared chalk, dried, a pound and a half;
Rub them separately into powder; then mix them, and sublime with a heat gradually raised until the retort becomes red hot.

Process.—The decomposition which occurs may be explained in two modes, and I shall first state the most simple, although not that which is generally admitted to be the true one. Muriate of ammonia consists of muriatic acid and ammonia; chalk of carbonic acid and lime, forming carbonate of lime; these, when heated, suffer mutual decomposition, and carbonate of ammonia and muriate of lime are formed; the former being volatile sublimes, and is condensed in the upper and cool part of the vessel, while the latter remains unacted upon by the heat.

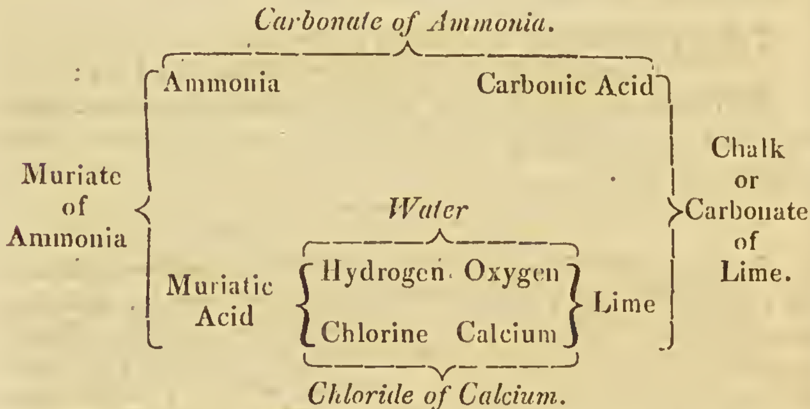
Carbonate of Ammonia.

Muriate of Ammonia.	Ammonia	Carbonic Acid	Chalk or Carbonate of Lime.
	Muriatic Acid	Lime	

Muriate of Lime.

According to modern views the decomposition is the result of more complicated affinities; muriate of ammonia consists of muriatic acid and ammonia, and chalk of carbonic acid and lime; but muriatic acid is itself a compound of chlorine and

hydrogen, and lime of the metallic body calcium, and oxygen. When these substances act upon each other, the muriate of ammonia and the carbonate of lime are not only decomposed, but the muriatic acid and the lime also ; the hydrogen of the former and the oxygen of the latter combine, and form water, which rises in vapour and is condensed with the carbonate of ammonia, while the chlorine of the muriatic acid uniting with the calcium of the lime, they form chloride of calcium, which remains in the vessel unacted upon by the heat ; the compound which was formerly called dry muriate of lime, being now according to more modern and correct views termed chloride of calcium.



Qualities.—When recently prepared, subcarbonate of ammonia is a colourless translucent mass of a striated or crystalline appearance, and it is moderately hard. Its smell is pungent, and its taste sharp and penetrating ; turmeric paper, when held over it is turned of a reddish brown colour by the ammonia which escapes. It is soluble in about four times its weight of cold water, and by hot water it is decomposed with effervescence. When the bottle, which contains this salt, is frequently opened, or if a small quantity of it be kept in a large bottle, it gradually becomes opaque and friable, and its pungency is much diminished; if it be exposed to the air for some time it is rendered totally inodorous, owing to the escape of ammonia, combined with a smaller quantity of carbonic acid, than exists in the inodorous salt.

Composition.—This salt consists, in its perfect state, of

Carbonic acid	55·93	or 3 atoms of carbonic acid	$22 \times 3 = 66$
Ammonia. . . .	28·81	2 atoms of ammonia. . . .	$17 \times 2 = 34$
Water	15·26	2 atoms of water	$9 \times 2 = 18$
	100·00	Weight of its atom	$= 118$

In stating the nature of this salt, we may consider it either as a sesquicarbonate, or as constituted of an atom of carbonate of ammonia combined with one atom of bicarbonate and two atoms of water: and it is evident that the name of *subcarbonate*, although it may be meant to express its alkaline properties, does not convey an accurate idea of its nature. If we view it as composed of carbonate and bicarbonate, it follows as a matter of course, that during its preparation an atom of ammonia has escaped. By exposure to the air it is rendered quite inodorous as already mentioned, because the whole of the carbonate of ammonia flies off, leaving only the bicarbonate and water, composed of

Carbonic acid	55·70	or 2 atoms of carbonic acid	22×2=44
Ammonia . . .	21·52	1 atom of ammonia.	=17
Water	22·78	2 atoms of water	9×2=18
	100·00	Weight of its atom	=79

Incompatibles.—Subcarbonate of ammonia is decomposed by acids, by potash and soda, and their subcarbonates, lime, lime water, solution of muriate of lime, magnesia, alum, acidulous salts, as supertartrate and supersulphate of potash, and solutions of iron, except the tartarized iron; oxymuriate of mercury, the acetate and subacetate of lead, sulphate of iron and of zinc, are also incompatible with this salt. With sulphate of magnesia it affords no precipitate and probably none with the alkaline solution of iron; but with the first it unites to form a double salt, and perhaps converts the subcarbonate of potash of the latter compound into carbonate by yielding its carbonic acid.

Adulteration.—It would be difficult to mix any substance with this salt, without destroying its obvious qualities; but a large quantity has been prepared from the residue of the gas-light companies' works; this has a disagreeable smell, from which it is purified with difficulty.

Officinal preparations. — Liquor Ammoniæ subcarbonatis, Liquor Ammoniæ acetatis, Linimentum Ammoniæ subcarbonatis, Cuprum Ammoniatum.

Medicinal uses.—It is stimulant, antispasmodic, diaphoretic, powerfully antacid, and in large doses emetic. In the form of smelling salts it is useful in syncope and hysteria. It must not be kept in powdered mixtures, and although in the form of pill its properties are longer retained, it is by no means an eligible mode of exhibiting it. Dose, gr. v to xx; xxx grains are emetic.

Lĭquor Ammōnĭæ Subcarbōnātis.

Solution of Subcarbonate of Ammonia.

Take of Subcarbonate of ammonia four ounces,
Distilled water a pint;

Dissolve the subcarbonate of ammonia in the water, and filter the solution through paper.

This solution ought not to be prepared in large quantities at a time, for by keeping, or rather by the occasional exposure to air, its pungency and powers suffer diminution. Dose, ℳ xxx to f ʒj. in any bland liquid. This solution is of course incompatible with the substances already named as such with the subcarbonate of ammonia.

Lĭquor Ammōnĭæ Acētātis.

Solution of Acetate of Ammonia.

Take of Subcarbonate of Ammonia two ounces,
Diluted Acetic Acid four pints, or as much as may be necessary.

Add the acid to the subcarbonate of ammonia, until bubbles cease to be evolved, and mix them.

Process.—In this preparation the carbonic acid is expelled by the stronger affinity of the acetic acid for the ammonia, and the carbonic acid being evolved in the state of gas, acetate of ammonia remains in solution. Distilled vinegar varies considerably in strength as already noticed; when its sp. gr. is 1·009, a pint will require within a few grains of 7 dr. of subcarbonate of ammonia for its saturation, but if the vinegar be weaker the quantity of subcarbonate required will be smaller; and, on the other hand, if the subcarbonate have become opaque by the loss

of ammonia, its quantity must be increased; the best method is to add the alkaline salt to the acetic acid, and to examine the state of saturation with turmeric and litmus paper; it is better that the acid should appear to be in excess, for the carbonic acid which remains for some time in solution, and which seems to indicate excess of acetic acid, is eventually dissipated; it is owing to the presence of this acid that solution of acetate of ammonia, when mixed with that of subacetate of lead, often gives a white precipitate of carbonate of lead, and a fallacious appearance of the presence of sulphuric acid in the distilled vinegar. It has been already stated that vinegar which has been condensed in a metallic worm, affords a dark coloured precipitate when converted into solution of acetate of ammonia.

Incompatibles.—Acids, potash, soda and their subcarbonates, lime water, magnesia, sulphate of magnesia, corrosive sublimate, sulphate of iron, copper, and zinc, and nitrate of silver; with the acetate and subacetate of lead also, on account of the carbonic acid which it contains.

Medicinal uses.—This preparation is not unfrequently employed as a collyrium, in which case it is especially requisite that there should be no excess of subcarbonate of ammonia. When assisted by warmth and plentiful dilution, it is an excellent diaphoretic, and in some cases it acts as a diuretic. Dose f℥ii. to f℥vi. Externally as a lotion it is refrigerant.

Pōtassæ Subcarbōnas

Subcarbonate of Potash.

Take of Impure potash bruised three pounds,
Boiling water three pints and a half;

Dissolve the potash in the water and filter the solution; then pour it into a clean iron vessel, and evaporate the water with a slow fire, that the liquor may thicken; lastly, having removed the fire, stir the liquor constantly with an iron spatula until the salt becomes granular.

Subcarbonate of potash may be prepared in the same way from tartar, which must first be burnt until it becomes ash-coloured.

Process.—By impure potash it is presumed that the College mean the impure subcarbonate of potash called *pearlash*; this

consists of subcarbonate of potash, mixed with various saline and some earthy substances. By solution in water the greater proportion of the impurity is removed, but it is better to use cold water than hot, as directed by the College, and less than half the quantity.

Iron vessels are, I believe, rarely employed, for the rust which they so speedily acquire would injure the colour of the salt; copper vessels are generally preferred, and are used without inconvenience; it is requisite also to keep the subcarbonate of potash over the fire until it becomes perfectly dry, otherwise it will scarcely be sufficiently deprived of moisture to granulate.

Qualities.—This salt is colourless and inodorous, its taste is strong and disagreeable; it crystallizes only by particular management, and the form of the crystal has not been ascertained; it is deliquescent, attracting in a short time enough water from the atmosphere to become fluid; water dissolves an equal weight of it, and any residue may be considered as impurity; it is insoluble in alkohol. The solution turns vegetable blues green, and yellows brown; the salt is not decomposed at a red heat.

Composition.—When perfectly pure this salt is composed of

Carbonic acid	31·43 or	1 atom of carbonic acid	= 22
Potash......	68·57	1 atom of potash......	= 48
	100·00	Weight of its atom	= 70

As this salt consists of one atom of each of its constituents, its proper appellation is carbonate of potash, but on account of its alkaline properties it has long been termed a subcarbonate. As usually prepared it contains about 16 per cent. of water, which does not appear to be in any definite proportion. The weight lost by exposure to a red heat shows the quantity of water.

Impurities.—The impurities of this salt are generally some earthy matter, with a small portion of sulphuric and muriatic salts, amounting to about 3 per cent; this admixture is quite unimportant in a medicinal point of view. The proportion of these impurities may however be greater, and it may be determined by saturating a solution of 100 grains of the subcarbonate with nitric acid, and adding solution of barytes to one half of it, and nitrate of silver to the other; if the quantity of sulphate of barytes and chloride of silver obtained do not exceed one grain each, the preparation may be considered as sufficiently pure. If it contain any lime, it will be detected by dissolving a portion in an acid, and adding a little solution of subcarbonate of soda, which will throw down carbonate of lime.

Incompatibles.—Acids and acidulous salts, muriate of ammonia, acetate of ammonia, lime-water and muriate of lime, sulphate of magnesia, alum, tartarized antimony, nitrate of silver, ammoniated copper, ammoniated iron and its tincture, sulphate of iron, tincture of muriated iron, calomel and corrosive sublimate, acetate and subacetate of lead, sulphate of zinc. It does not decompose solution of tartarized iron.

Officinal preparations and uses. Liquor Potassæ subcarbonatis, Liquor Potassæ, Potassæ acetas, Potassæ sulphas, Potassæ tartras, Magnesiæ subcarbonas, Potassæ Sulphuretum, Alkohol, Liquor Arsenicalis, Liquor Ferri alkalini, Hydragyrum præcipitatum albnm, Spiritus Ammoniæ and Spiritus Ammoniæ aromaticus, Decoctum Aloes compositum, Mistura Ferri composita, Pilulæ Ferri compositæ.

Medicinal uses.—Antacid and diuretic. Dose from gr. x to gr. xxx. It is far less pleasant than the carbonate. It is principally used for making saline draughts.

Lĭquor Pōtassæ Subcarbōnātis.

Solution of Subcarbonate of Potash.

Take of Subcarbonate of potash a pound,
Distilled water twelve fluidounces.

Dissolve the subcarbonate of potash in the water, and filter the solution through the paper.

Qualities.—This solution of subcarbonate of potash has a specific gravity of 1·446. It is a colourless inodorous solution, the dose of which is from ♏ x to f℥i. Its incompatibles and pharmaceutic uses are enumerated above.

Pōtassæ Carbōnas,

Carbonate of Potash.

Take of Solution of subcarbonate of potash a gallon;

Pass carbonic acid through the solution of subcarbonate of potash in a proper vessel, until it is perfectly saturated,

and filter the solution. Evaporate the filtered solution that crystals may form, taking care that the heat does not exceed 120°. Having poured off the solution, dry the crystals upon bibulous paper.

Carbonic acid is very easily obtained from white marble and dilute sulphuric acid.

Process.—In the last Pharmacopœia, carbonate of potash was directed to be prepared by heating a mixed solution of subcarbonate of potash and subcarbonate of ammonia: the latter being decomposed, its carbonic acid combined with the subcarbonate of potash, and the ammonia was evolved in the gaseous state. The present method is a much better one than the former, for reasons which it is not now necessary to assign; but there are some of its details which have not, I think, been sufficiently attended to: these I shall presently state. I have already mentioned that subcarbonate of potash consists of one atom of each of its constituents, and that its correct name is *carbonate* of potash, the term by which the College designate what is now usually denominated *bicarbonate* of potash, as consisting of two atoms of acid and one atom of base. As the process will be better understood by using the correct chemical terms, I shall, on the present occasion, depart from my usual plan of adopting the College nomenclature. Carbonate of potash consists of one atom of acid and one of potash. Marble, or carbonate of lime, is composed of one atom of carbonic acid and one of lime. When sulphuric acid is added to the carbonate of lime, it is decomposed by the superior affinity of the sulphuric acid for its base; and the carbonic acid evolved in the gaseous state, being passed into the solution of carbonate of potash, combines with and converts it into bicarbonate, while sulphate of lime remains in the vessel in which the sulphuric acid is poured upon the marble.

Bicarbonate of Potash=2 *atoms Acid*+1 *atom Potash.*

Carbonate of Lime: Carbonic Acid, 1 atom — Carbonate of Potash, 1 atom Acid+1 atom Potash

Lime, 1 atom. — Sulphuric Acid.

Sulphate of Lime.

The difficulties to which I have alluded in this process are two: first, the sulphate of lime formed, envelopes a portion of the carbonate of lime or marble, and prevents its decomposition. It is much better to employ muriatic acid; the operation is more manageable, on account of the greater facility of removing muriate than sulphate of lime; and at the present low price of common salt, this acid will not be much more expensive than the sulphuric; and if it were so, I find that it is easy to recover most of the muriatic acid in a state fit for using again, and with very little loss, by decomposing the solution of muriate of lime with dilute sulphuric acid. The muriatic acid thus procured may be poured off from the precipitated sulphate of lime. The second inconvenience must arise from using so strong a solution as that directed in the Pharmacopœia. Allowing for the 16 per cent. of water which the subcarbonate of potash contains, the solution in question consists of very nearly 13 oz. 2 dr. of water, and 10 oz. 2 scr. of subcarbonate of potash. Now, to convert this into crystallized carbonate, or rather bicarbonate, it must combine with 3 oz. 1 dr. 1 scr. of carbonic acid, and with 1 oz. 2 dr. 1 scr. of water of crystallization; the whole product of the crystallized carbonate will consequently amount to 14 oz. 4 dr. 1 scr. and the quantity of water will be reduced to less than 12 oz. According to Dr. Paris, and other authorities, carbonate of potash requires four times its weight of water at 60° to dissolve it, and, consequently, instead of evaporation being necessary for the production of crystals in this process, there is but little more than one-fifth of the water present necessary for their solution.

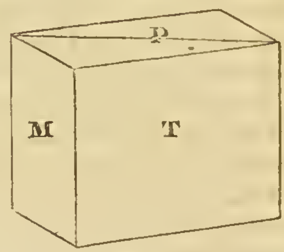
One pound of subcarbonate of potash should be dissolved in about five times its weight of water; this, for its conversion into carbonate, will require the carbonic acid of 7 oz. 1 dr. nearly of marble or chalk, evolved by two and a half times its weight of muriatic acid, of sp. gr. 1·160, diluted with twice its quantity of water. The solution of muriate of lime obtained may be decomposed by 7 oz. of sulphuric acid diluted with four or five times its quantity of water; the clear dilute muriatic acid being poured off from the sulphate of lime, it may be used for the decomposition of a fresh portion of carbonate of lime. The above are nearly the proportions requisite, supposing the whole of the carbonic acid evolved to combine with the subcarbonate of potash; but in practice this never happens, and the saturation must be determined either by experience or by the use of turmeric paper.

Qualities.—This salt is inodorous, colourless, and crystalline. When properly prepared it has scarcely any alkaline taste, and

acts but slightly, if at all, upon turmeric paper. It suffers no change by exposure to the air. It requires four times its weight of water at 60° for solution: by boiling water it is partially decomposed, and rendered more soluble by the loss of carbonic acid. When exposed to a low red heat, it loses half its carbonic acid, the whole of its water of crystallization, and returns to the state of subcarbonate; and this is a good method of procuring the latter in a state of purity. It is insoluble in alkohol.

The primary form of this substance is *a right oblique-angled prism*, which is not readily traced in the secondary crystals, but may be derived from cleavage, and is shown in fig. 1. There is also a cleavage parallel to a plane passing through the diagonal marked on the terminal planes.

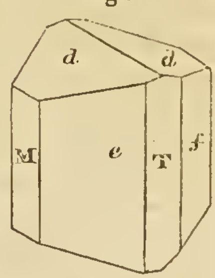
Fig. 1.



P on M, or T	90°	00′
M on the diagonal plane	53	15
M on T.	103	25

The planes which appear on the crystals are represented in fig. 2; but the planes *e* are sometimes very disproportionately extended, so as nearly to efface T and *f*, giving to the crystals the character of another primary form.

Fig .2.



The planes T do not commonly occur on the crystals, and without these they nearly resemble a secondary form of the *right rhombic prism;* they may, however, be distinguished by the unequal inclination of M on the two adjacent planes. On cleaving or otherwise breaking the crystal, water may be observed between the laminæ, which probably occasions the measurement on the cleavage planes not accurately to agree.

This is also the case with many other of the factitious salts.

M on plane parallel to *f*	127°	35′
M on *e*	126	45
T on *e*	156	50
T on *f*	128	50
e on *f*	105	40
M on *d*	111	00
d on *d′*	138	00

Composition.—Carbonate, or rather bicarbonate of potash, is composed of

Carbonic acid	43·56	or 2 atoms acid 22 × 2	= 44
Potash	47·53	1 atom potash	= 48
Water......	8·91	1 atom water......	= 9
	100·00	Weight of its atom	= 101

Adulteration.—This salt should dissolve entirely in dilute nitric acid, and form a perfectly clear solution, in which neither nitrate of barytes, nitrate of silver, nor subcarbonate of soda, should produce any turbidness. If perfectly saturated with carbonic acid, no precipitation will be effected by adding a solution of it to one of sulphate of magnesia: the solution should scarcely affect turmeric paper.

Incompatibles.—These are nearly the same as enumerated when treating of the subcarbonate of potash. It does not, however, produce any precipitate in a solution of sulphate of magnesia; and I believe that calomel, unless heat be applied, is not decomposed by it.

Medicinal uses.—In cases where an alkali is indicated, this preparation offers an agreeable and efficient remedy; and experience has shown that its additional proportion of carbonic acid does not in the least invalidate its alkaline agency. Dose, grs. x. to xxx.

Lĭquor Pōtassæ.

Solution of Potash.

Take of Subcarbonate of potash a pound,
Fresh lime half a pound,
Boiling distilled water a gallon;

Dissolve the potash in two pints of the water, and add the remainder to the lime. Mix the hot liquors; then set by the mixture in a covered vessel, and, when cold, strain it through a cotton bag.

If any diluted acid dropped into the solution extricate bubbles, it will be necessary to add more lime, and to strain it again.

A pint of this solution ought to weigh sixteen ounces.

Process.—The lime has a strong affinity for the carbonic acid which has been expelled from it by heat; and when it is mixed with the subcarbonate of potash, owing to the greater affinity existing between the earth and the acid, than between the alkali and the acid, the carbonate of potash is decomposed, and the potash remaining in solution, the carbonate of lime is precipitated.

Solution of Potash.

Solution of Subcarbonate of Potash.	Water Potash	
	Carbonic Acid.	Lime.

Carbonate of Lime.

Qualities.—Solution of potash is limpid, colourless, and inodorous; its taste is extremely acrid and caustic; and, when rubbed between the fingers, it feels soapy, in consequence of a partial solution of the cuticle. A pint is stated to weigh 16 oz., and, if so, its sp. gr. must be 1·056. It should be carefully preserved from the contact with air, in order to prevent the absorption of carbonic acid.

Adulteration.—Although the potash is by this process sufficiently deprived of carbonic acid for medicinal uses, yet it always retains a certain portion of the acid; so that it is in vain to expect to procure it so perfect as that limewater shall occasion no precipitation.

Incompatibles.—Acids, acidulous salts, subcarbonate, acetate and muriate of ammonia, preparations of metals and earths held in solution by acids; calomel, and corrosive sublimate.

Officinal preparations.—Potassa fusa, Potassa cum Calce, Sulphuretum Antimonii præcipitatum.

Medicinal uses.—Antacid, diuretic, alterative, and lithonthryptic; it has also been found useful in some cutaneous diseases, as in lepra, psoriasis, &c. Dose ♏ x. to f ʒ ss. It is recommended to give it in veal broth or in table beer: the latter is said to disguise its nauseous flavour completely. Care, however, ought to be taken that the beer is not sour.

Pōtassa Fūsa.

Fused Potash.

Take of Solution of potash a gallon.

Evaporate the water in a clean iron vessel over the fire, until the ebullition having ceased, the potash melts; then pour it upon a clean iron plate into pieces of a convenient form.

Qualities.—Fused potash is a compound of potash and water, and its correct chemical appellation is hydrate of potash; when pure it is white, hard and brittle, but as usually prepared for medicinal purposes, it contains the various impurities of the solution, and frequently peroxide of iron, acquired during evaporation. It is usually of a brownish and sometimes of a blueish tint, is extremely caustic, and very deliquescent, attracting first water and then carbonic acid from the atmosphere; water dissolves nearly an equal weight of it, and during solution heat is extricated.

Unlike the carbonate and subcarbonate of potash, it dissolves readily in alkohol. It possesses in the strongest degree the properties denominated alkaline.

It melts at a low red heat, and at a bright red it evaporates. It is usually poured into moulds to give it the form requisite for use as a caustic.

Composition.—Potash is the protoxide of the metallic body potassium; it consists of nearly

Potassium..	83·3	or 1 atom of potassium.. =	40
Oxygen ...	16·7	1 atom of oxygen .... =	8
	100·0	Weight of its atom =	48

The potassa fusa of the Pharmacopœia is not however mere potash or oxide of potassium, but, as above remarked, hydrate of potash, consisting of nearly

Potash.....	84·2	or 1 atom of potash .... =	48
Water.....	15·8	1 atom of water .... =	9
	100·0	Weight of its atom =	57

Hydrate of potash, or potassa fusa, melts when exposed to a moderate degree of heat; but so great is the affinity existing between the potash and the water, that although they may be evaporated together at a strong heat, the water cannot be separated by it. During the preparation of the potassa fusa a portion of the potash becomes peroxide of potassium, but the additional oxygen thus acquired, is given out again in the gaseous state, during solution in water.

Medicinal uses.—Potassa fusa is used only externally as a caustic; excepting for particular purposes, the argenti nitras or lunar caustic is generally preferred; for, on account of the deliquescent property of the potassa fusa, it is difficult to confine its action within the requisite limits.

Pōtassa cum Calce.

Potash with Lime.

Take of Solution of Potash three pints,
Fresh lime a pound;

Boil the solution of potash down to a pint; then add the lime previously slaked by water, and mix them carefully.

The lime is intended to render the potash less deliquescent, and more manageable as an escharotic.

Pōtassæ Acētas.

Acetate of Potash.

Take of Subcarbonate of potash a pound,
Stronger acetic acid two pints,
Boiling distilled water two pints;

Having first mixed the acid with the water, add it to the subcarbonate of potash till no more bubbles are evolved, and filter. First evaporate the solution in a water-bath until ebullition ceases. Then expose it to a gradually increased temperature, and again evaporate until a pellicle

is formed; having removed the pellicle, dry it upon bibulous paper. Let the liquor be again frequently evaporated, and remove the pellicle in the same way, and dry it.

Process.—Owing to the greater affinity of the acetic acid for potash, the carbonic acid is expelled in the gaseous state; it is an unquestionable improvement to employ pure acetic acid in this preparation, as now directed by the College, instead of distilled vinegar; for the decomposition of the mucilage contained in the latter, rendered it difficult to procure a white salt. One hundred grains of the acidum aceticum fortius are stated to saturate 87 of crystallized subcarbonate of soda; now the quantity of this alkaline salt required to saturate a given portion of any acid, is to that of the subcarbonate of potash, of the Pharmacopœia, as 153 to 84 very nearly, and consequently 100 grains of the acidum aceticum fortius, saturate about 48 grains of the subcarbonate, and as two pints of the acetic acid weigh 32 oz. within a drachm, they will require 15 oz. of subcarbonate of potash for their saturation: or the 12 oz. directed by the College will require about 25$\frac{1}{4}$ fluidounces of the two pints of acetic acid.

I have not tried the present method of preparing the acetate of potash, but I confess that I entertain some doubt of its eligibility, except as to the substitution of pure acetic acid for distilled vinegar.

Qualities—As usually prepared, acetate of potash is colourless and nearly inodorous; its taste is pungent and saline, it has a foliated texture, and is extremely deliquescent, very soluble in water, and is dissolved also by alkohol; it is decomposed by a strong heat, and converted into subcarbonate of potash.

Composition.—Acetate of potash consists of

Acetic acid	51	or 1 atom of acetic acid	= 50
Potash....	49	1 atom of potash....	= 48
	100	Weight of its atom	= 98

Adulteration.—Sulphates are detected by adding a solution of nitrate of barytes to one of the salt in question, and muriates by nitrate of silver; but if neither of them occasion a precipitate insoluble in excess of nitric acid, then it is free from these admixtures. It has been stated that if it contain tartrate of potash, tartaric acid will form a bitartrate with it, and crystals of this

salt will be formed; the fact is, however, that tartaric acid decomposes the acetate of potash itself, and produces the effect attributed to the presence of previously existing tartrate of potash.

Incompatibles.—It is decomposed by the sulphuric, muriatic, nitric, and other strong acids, the acetic acid being expelled; it is also decomposed by sulphate of soda, and of magnesia, and by several metallic and earthy salts.

Medicinal uses.—In small doses it is diuretic, and in larger ones mildly carthartic. Dose as a diuretic from ℈j. to ʒj.; as a cathartic from ʒij. to ʒiij. As it is deliquescent it must be exhibited in solution.

Pōtassæ Tartras.

Tartrate of Potash.

Take of Subcarbonate of potash sixteen ounces,
Supertartrate of potash three pounds,
Boiling water a gallon;

Dissolve the subcarbonate of potash in the water; then add to it the supertartrate of potash reduced to powder, until bubbles cease to be evolved. Filter the solution through paper; then boil it until a pellicle is formed, and set it by, that crystals may form. Having poured off the solution, dry the crystals upon bibulous paper.

Process.—Supertartrate of potash, it has been already stated, is a salt deposited from wine; it consists of tartaric acid and potash, and the acid being sufficient to saturate as much more potash, as that with which it is already combined, the salt is correctly called bitartrate of potash. This salt has an acid taste, is difficultly soluble in water, and the solution reddens vegetable blue colours.

It consists of

Tartaric acid	70·15	or 2 atoms of tartaric acid 67 × 2	= 134
Potash.....	25·13	1 atom of potash............	= 48
Water.....	4·72	1 atom of water............	= 9·
	100·00	Weight of its atom	= 191

According to what I have already stated 100 parts of this salt must require 25·13 of potash for their saturation, which are

equivalent to 43·6 of subcarbonate of potash. Three pounds of supertartrate of potash therefore require 15·6 ounces of subcarbonate, by calculation, and by experiment I have found it 15·7; the proportions directed by the College are therefore as nearly as possible correct.

When these salts are made to act upon each other, the excess of tartaric acid in the supertartrate expels the carbonic acid in the state of gas from the subcarbonate of potash, and the supertartrate by this addition of potash becomes simple or neutral tartrate of potash.

The primary form of supertartrate or bitartrate of potash is a *right rhombic prism*: the first of the annexed figures represents the planes of its ordinary crystal in a perfect state: M and M′ are the lateral primary planes, and the crystals admit of cleavage parallel to those planes, and to the plane *h*, which is parallel to the shorter diagonal of the primary prism; it also cleaves parallel to the longer diagonal. The crystals are not however commonly so perfect as this figure, nor indeed is it usual to observe all its planes; for owing to the extraordinary enlargement of certain of them, others are either much diminished, or totally disappear. The common crystals are represented by the second figure; and in observing them, it must be recollected that the plane *h* is constantly striated, as represented in both figures.

Fig. 1.

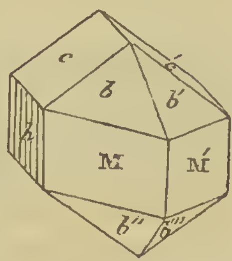
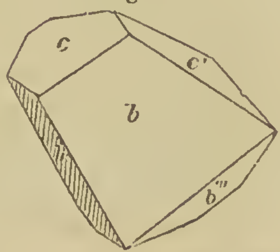


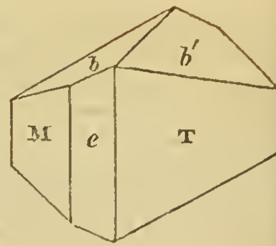
Fig. 2.



M on M′	107°	30′
—— *h*	126	15
—— *b*	117	2
b on *b*‴	74	0
b on *c*	141	25
b on *c*′	103	18
c on *h*	125	30
c on *c*′	109	0

Qualities.—Tartrate of potash has a bitter taste, is readily soluble in water, and hence its former name of soluble tartar. It is sometimes met with in the shops in the state of powder, but it ought always to be crystallized. In a moist atmosphere it attracts water, and is by a red heat decomposed, and converted into subcarbonate of potash.

The primary form of tartrate of potash is a *right oblique angled prism*, with cleavages parallel to the lateral planes.



M on T	89°	30′
M on *e*..........	142	13
M on *b*..........	107	30
T on *e*	127	17
T on *b*′..........	103	40

Composition.—Tartrate of potash consists of

Tartaric acid.	58·26	or 1 atom acid....	= 67
Potash......	41·74	1 atom potash..	= 48
	100·00	Weight of its atom	=115

Adulteration.—This salt is not likely to be mixed with others, but if it have been imperfectly prepared and not crystallized, it may contain excess of supertartrate of potash, or of subcarbonate of potash; the presence of these, if suspected, may be determined by litmus or turmeric paper. If any sulphuric salt have been mixed with it, it will be shown by affording a precipitate with muriate of barytes, insoluble in muriatic acid; muriatic salts will be detected by nitrate of silver yielding a precipitate insoluble in nitric acid.

Incompatibles.—This salt is decomposed by most acids, and many acidulous salts, for when added to a solution, they occasion the formation and crystallization of bitartrate of potash. It is decomposed by lime-water and muriate of lime, and by solutions of lead and silver.

Medicinal uses.—It is a mild and efficient purgative, and when given with resinous purgatives or senna, it corrects their griping properties by accelerating their operation. Dose ʒj. to ℥j. in solution.

Pōtassæ Sūpersulphas.

Supersulphate of Potash.

Take of the salt which remains after the distillation of nitric acid two pounds,
Boiling water four pints;

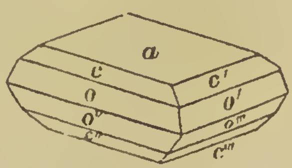
Mix them so that the salt may be dissolved and filter. Then boil the solution to one-half, and set it by that crystals may form; having poured off the solution, dry them upon bibulous paper.

Process.—It has been already explained, that the salt which remains after the distillation of nitric acid, consists of potash, combined with twice as much sulphuric acid as is required for its saturation, and that in chemical language it is called bisulphate of potash.

In preparing this salt, it is requisite that the solution should be sufficiently evaporated, for if the quantity of water be too large, the excess of sulphuric acid remains in combination with it, and common sulphate of potash is procured.

The annexed sketch and measurements of the common crystal of this salt, are furnished by my brother; but the crystal is much flatter than the sketch, and occasionally other planes may be observed, which, when they prevail, tend to alter the general form of the crystal: but neither these forms, nor that of the primary crystal have yet been determined; the primary may however prove to be either a *right rhombic prism*, or an *octahedron with rhombic bases.* There appears to be but one cleavage: —namely, parallel to the plane *a;* some very slight errors in the measurements may exist, since they were taken by means of the reflective goniometer by candle-light.

a on c or c'	135°	0′
——o or o'	108	30
c on c'................	125	10
o on o'	103	52
o on o''	142	44



Qualities.—This salt is extremely acid and bitter; it is very soluble in water, the solution acts strongly upon vegetable blue colours, and decomposes the alkaline, earthy, and metallic carbonates with effervescence. By a red heat the water of crystallization and half of the acid are expelled, and common sulphate of potash remains.

Composition.—It is composed of

Sulphuric acid	54·80	or 2 atoms acid ..	40 × 2 = 80
Potash......	32·87	1 atom potash........	= 48
Water	12·33	2 atoms water ..	9 × 2 = 18
	100·00	Weight of its atom	= 146

Adulteration.—If the proper quantity of sulphuric acid have been used in preparing the nitric acid, and the solution sufficiently evaporated, there is no danger of admixture; but if the sulphuric acid have been deficient, then a mixture of sulphate and nitrate of potash is obtained; and without due evaporation common sulphate of potash crystallizes, even when there is sufficient sulphuric acid.

Incompatibles.—This salt is incompatible with alkalies, earths, and their carbonates; many metals and most oxides are acted upon by the excess of acid which it contains.

Officinal preparations.—Potassæ Sulphas.

Medicinal uses.—It is exhibited combined with other purgatives, especially with Rhubarb. Dose gr. x. to ʒij.

Pōtassæ Sulphas.

Sulphate of Potash.

Take of the salt which remains after the distillation of nitric acid two pounds,
Boiling water two gallons;

Mix them so that the salt may be dissolved, and add as much subcarbonate of potash as may be sufficient to saturate the acid. Then boil the solution until a pellicle forms on the surface, and, having filtered it, set it by that crystals may form. Having poured off the solution, dry the crystals upon bibulous paper.

Process.—The most economical method of procuring sulphate from bisulphate of potash, is to saturate the excess of acid with lime, for sulphate of potash is of less value than subcarbonate: two pounds or 24 oz. of the dry bisulphate of potash require nearly 16 oz. of the subcarbonate for their saturation, which is attended with the evolution of carbonic acid gas.

Qualities.—This salt has a bitter taste; water at 60° dissolves only one-sixteenth of its weight of this salt, but boiling water a much larger quantity; it is insoluble in alkohol. It suffers no change by exposure to the air, or by a moderate degree of heat, for it contains no water of crystallization.

The primary form of this salt is a *right rhombic prism;* M M′ and P are primary planes.

Fig. 1. is a single modified crystal.

M on M′	120°	30′
M on *h*	120	45
M on *c*	146	22
h on *c*	146	10
c on *c*′	131	12

Fig. 1.

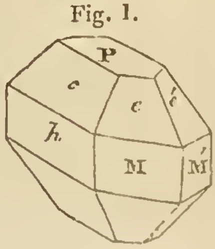


Fig. 2.

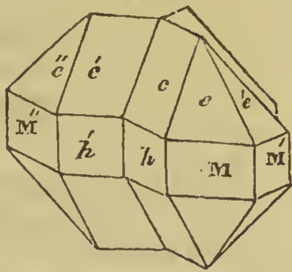


Fig 2 is the compound crystal, which consists of three single crystals, so united that their upper edges meet at angles of 120°, and consequently the planes of junction incline to each other at the same angle. Hence,

M on M''............119° 30'
e on *e''*..............130 24

Fig. 3.

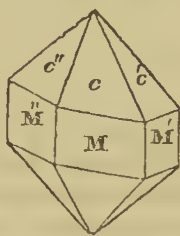


Fig. 3 is one of the common bi-pyramidal crystals, whose relation to the preceding figures may be perceived from the corresponding letters on the planes.

The union of these three crystals takes place at an angle of 120°.

Composition.—Sulphate of potash is composed of

Sulphuric acid	45·45	or 1 atom of acid....	= 40
Potash......	54·55	1 atom of potash..	= 48
	100·00	Weight of its atom	= 88

Adulteration.—This salt is so extremely cheap, and in its crystalline state any mixture would be so obvious, that adulteration is hardly to be suspected. It may, however, be observed, that the solution should produce no change in the colour of litmus or turmeric paper; no precipitate with solution of sulphate of silver, nor any upon the addition of ammonia or its subcarbonate.

Incompatibles.—The solution of this salt is decomposed by tartaric acid, which forms crystals of bitartrate of potash; by muriate of barytes, barytes-water, and by muriate of lime, but not by lime-water as has been asserted; it also decomposes the solutions of acetate and subacetate of lead.

Medicinal uses.—It should be exhibited in the form of powder, in conjunction with rhubarb or some other purgative medicine. On account of its hardness it is an eligible substance for triturating with other bodies and dividing powders; with this intention it enters into the composition of Pulvis Ipecacuanhæ Compositus. Dose, gr. x. to ℥ss.

Sōdæ Subcarbōnas.

Subcarbonate of Soda.

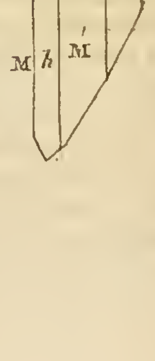
Take of impure soda powdered, a pound,
Boiling distilled water four pints;

Boil the soda in the water for half an hour, filter the solution, evaporate it to two pints, and set it by that crystals may form. Reject the remaining solution.

Process.—By the term impure soda, it is presumed that the College mean *barilla* or the impure subcarbonate, obtained by the incineration of sea-weed; this consists of various saline, and other impurities, mixed with variable quantities of subcarbonate of soda, which may be separated in a state of considerable purity by crystallization. The quantity of water directed to be used is larger than is requisite; this salt is however hardly ever prepared excepting on the great scale, and then I believe not from barilla, but by more economical means.

Subcarbonate of soda is frequently met with in crystals of considerable size; the primary form of this salt was given by Romé De L'Isle as an *octahedron with a rhombic base*, but without due examination of the crystals; for even with the common goniometer, the difference of more than 3° between the inclination of M on M′, and *e* on *e*′, of the annexed fig. 1. might have been readily detected.

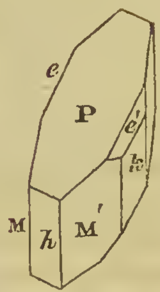
Fig. 1.



This figure represents the ordinary shape of the crystals.

P on M, or M′	108°	43′
P on *e*, or *e*′	129	52
P on *h*	121	20
M on M′	76	12
M on *h*	128	6
M on *k*	141	54
e on *e*′	79	44
e on *k*	140	8

Fig. 2.



The crystals represented by fig. 2, are reduced in height, and so thin as to leave scarcely a vestige of the planes M and *h*, and several are hemitropes, the plane of imaginary section being parallel to P.

The primary form appears to be *an oblique rhombic prism.*

Qualities.—The taste of subcarbonate of soda is alkaline and disagreeable, but less so than that of subcarbonate of potash; the crystals contain a large quantity of water, the greater part of which they readily lose by exposure to the air, and at high temperatures the salt becomes fluid and boils. Water at 60° dissolves half its weight of subcarbonate of soda, and boiling water considerably more. The solution possesses the alkaline property of rendering vegetable yellows brown.

Composition.—Subcarbonate of soda in the crystallized state consists of

Carbonic acid....	14·38	or 1 atom acid	= 22
Soda	20·92	1 atom soda	= 32
Water..........	64·70	11 atoms water 9×11	= 99
	100.00	Weight of atom	= 153

Although in the Pharmacopœia this salt is called subcarbonate, its correct name is carbonate, as it consists of one atom of acid and one of base.

Adulteration.—This salt frequently contains a considerable admixture of sulphate of soda and common salt; to detect these, convert the subcarbonate into a nitrate, and add to separate portions of the solution, nitrate of barytes and nitrate of silver; if the former give a precipitate, it is owing to the presence of a sulphuric salt, and if the latter, to common salt.

Incompatibles.—This salt is incompatible with acids, acidulous salts, lime-water, muriate of ammonia, earthy and metallic salts.

Pharmaceutic uses.—In preparing Ferri Subcarbonas, and Pilulæ Ferri Compositæ.

Medicinal uses.—These are similar to those of the subcarbonate of potash, but this salt is preferable as being more mild and less nauseous. Dose from gr. x. to ʒj. twice or thrice a day.

Sōdæ Subcarbōnas Exsiccāta.

Dried Subcarbonate of Soda.

Take of subcarbonate of soda a pound;

Apply a boiling heat to the subcarbonate of soda in a clean iron vessel, until it is thoroughly dried; and stir it constantly with an iron spatula. Lastly, reduce it to powder.

Process.—It has been already mentioned that subcarbonate of soda contains more than 64 per cent. of water; at a high temperature the whole of this is expelled, but what proportion is evaporated by the boiling heat here directed, I have not determined. In the dry state it is conveniently exhibited in powder, mixed with other medicines. Dose gr. v. to xv.

Sōdæ Carbōnas.

Carbonate of Soda.

Take of subcarbonate of soda a pound,
Distilled water three pints;

Dissolve the subcarbonate of soda in the distilled water: Then pass carbonic acid through the solution, in a proper vessel, to perfect saturation, and set it by that crystals may form. Dry the crystals wrapped up and pressed in bibulous paper. Evaporate the remaining solution, taking care that the heat does not exceed 120°, that crystals may again form; press and dry them in the same manner.

Process.—This process is similar to that employed for the preparation of Potassæ Carbonas, and nearly the same observations will apply to it; the salt is bicarbonate of soda.

Qualities.—When the solution becomes perfectly neutral, so as not to affect turmeric paper, crystals of bicarbonate of soda

are formed, and this salt being much less soluble in water than the subcarbonate, it falls down in the state of minute crystals; these are perfectly white, have but a slight and not an alkaline taste, and are partially decomposed even at a very moderate temperature.

Composition.—Independently of the water of crystallization, the proportion of which has not I think been clearly ascertained, carbònate, or rather bicarbonate of soda, consists of

Carbonic acid	57·9	or 2 atoms of acid..	22 × 2 = 44
Soda........	42·1	1 atom of soda	= 32
	100·0	Weight of its atom	= 76

Although I have seen what I believe to be real bicarbonate of soda, in the state of the moist crystals, yet I have never met with any that was dry which had not lost one-fourth of its carbonic acid by exposure to heat; it is then a white gritty powder, less soluble in water than the subcarbonate, like which it possesses an alkaline taste, and turns vegetable yellows brown, but both in a less degree.

This salt sometimes crystallizes, but the form of the crystal has not been determined; it is decomposed by a red heat, as is the bicarbonate, and dry subcarbonate of soda remains.

Composition.—This salt, which is generally sold as the carbonate of the Pharmacopœia, and the bicarbonate of chemists, is a compound of an atom of carbonate and an atom of bicarbonate soda, combined with water: it consists of

Carbonic acid	39·76	or 3 atoms of carbonic acid	22×3 = 66
Soda	38·55	2 atoms of soda	32×2 = 64
Water......	21·69	4 atoms of water	9×4 = 36
	100·00	Weight of its atom	= 166

Salts constituted of an atom of carbonate combined with one of bicarbonate, are sometimes called *sesquicarbonates*, as being equivalent to an atom and a half of acid and one atom of base. Salts of this description are not very common; but the ammoniæ subcarbonas of the Pharmacopœia has already been noticed as an example; the sesquicarbonate of soda occurs native in Africa, in hard striated masses.

Adulteration.—If the salt, after supersaturation with dilute nitric acid, give a precipitate with nitrate of barytes, it contains a sulphuric salt; and if with nitrate of silver, a muriatic salt.

Incompatibles.—The same as with subcarbonate of soda.

Medicinal uses.—Similar to those of the subcarbonate. Dose, gr. x. to gr. xxx. This salt is also employed for the purpose of making what are termed *sodaic powders*, by mixture with tartaric acid: these are used as a substitute for soda water, from which they differ in being tartrate of soda, with a portion of carbonic acid diffused through the solution, instead of consisting of carbonate of soda with an excess of carbonic acid gas.

Sōdæ Sulphas.

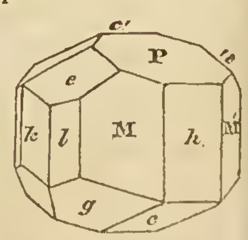
Sulphate of Soda.

Take of the salt which remains after the distillation of muriatic acid two pounds,
Boiling water two pints and a half;
Dissolve the salt in the water; then add gradually as much subcarbonate of soda as may be necessary to saturate the acid. Boil the solution until a pellicle appears, and, when it has been filtered, set it by that crystals may form. Having poured off the solution, dry the crystals upon bibulous paper.

Process.—The production of sulphate of soda during the preparation of muriatic acid has been already explained. Although the excess of sulphuric acid employed is small, yet the saturation of it by subcarbonate of soda, instead of by lime, incurs a needless expense, as explained when treating of Potassæ Sulphas.

Qualities.—Sulphate of soda readily crystallizes. The primary form of this salt is *an oblique rhombic prism.*

P on M, or M′	101°	20′
P on *e*, or *e*′	133	18
P on *h*	107	44
P on *c*′	130	45
M on M′	80	24
M on *h*	130	12
M on *l*	162	38
M on *k*	139	48



This salt has a very bitter taste. By exposure to the air it effloresces, and a white powder is left. It is very soluble in water, three parts of which, at 60°, dissolve one part of the

salt: boiling water dissolves its own weight. It is insoluble in alkohol. When exposed to heat it first undergoes watery fusion by melting in its water of crystallization; when the water has evaporated it becomes white, and at a red heat it melts.

Composition.—Sulphate of soda is composed of

Sulphuric acid ..	55·55	or 1 atom acid	= 40
Soda	44·45	1 atom soda	= 32
	100·00	Weight of its atom	= 72

In the crystallized state this salt consists of

Sulphuric acid ..	24·69	or 1 atom acid	= 40
Soda	19·75	1 atom soda	= 32
Water.........	55·56	10 atoms water....	= 90
	100·00	Weight of its atom	= 162

Adulteration.—If this salt contain acid or alkali in excess, they may be discovered by litmus or turmeric paper; common salt, by solution of sulphate of silver; and oxide of iron, by solution of ferrocyanate of potash or by tincture of galls.

Incompatibles.—Subcarbonate of potash, muriate of lime, solution of barytes and barytic salts; and nitrate of silver, if the solutions be strong; acetate and subacetate of lead.

Medicinal uses.—A common and efficient purgative. Its nauseous taste may be in a great degree disguised by the addition of a small quantity of lemon juice, or of supertartrate of potash. Dose ℥ ss. to ℥ ij.

Sōda Tartarizāta.

Tartarized Soda.

Take of Subcarbonate of soda twenty ounces,
Supertartrate of potash, powdered, two pounds,
Boiling water ten pints;

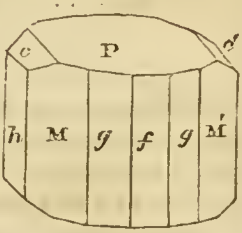
Dissolve the subcarbonate of soda in the water, and add by degrees the supertartrate of potash. Filter the solution through paper; then boil it until a pellicle appears on the surface, and set it by that crystals may form; having poured off the solution, dry them upon bibulous paper.

Process.—In this preparation the excess of tartaric acid contained in the supertartrate of potash is saturated with soda, by decomposing the subcarbonate and expelling its carbonic acid in the gaseous state. I have already stated that 191 parts of super or bitartrate of potash contain 67 parts, or one atom, of tartaric acid in excess; and this requires, by theory, 153 parts, or one atom of subcarbonate of soda for its saturation, and consequently the quantities directed by the College are as nearly correct as 19·2 to 20; but they must be a little subject to variation, on account of the efflorescent nature of the subcarbonate of soda.

Qualities.—This salt forms large and beautiful crystals. The form derived from cleavage is *a right rhombic prism.* This is modified in the crystals measured, as shown in fig. 1.

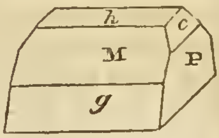
P on M, or M′	90°	0′
P on *c*	138	50
M on M′	100	0
M on *g* / M′on *g*′	163	0

Fig. 1.



There is a peculiarity in the crystals of this substance. They are produced nearly in halves, and appear to have rested or been formed on planes which would have passed through the middle of the entire crystal. One of these natural segments is shown in fig. 2; but in others of them, the front half of fig. 1 is the portion produced, the plane *f* being then uppermost. In some of the segments, however, there is a slight deviation from this exactness of position of the planes *f* or *h*.

Fig. 2



This salt is very slightly efflorescent when exposed to the air. It is soluble in five parts of water at 60°, and more so in boiling water. Its taste is rather bitter and saline. It is decomposed by a strong heat; the residuum is a mixture of carbonate of potash and carbonate of soda.

Composition.—This is a double salt, consisting of tartrate of potash and soda. The proportions are

Tartaric acid..	62·60	or 2 atoms of acid 67×2	= 134
Potash	22·44	1 atom of potash	= 48
Soda	14·96	1 atom of soda......	= 32
	100·00	Weight of its atom	= 214

Its composition may also be stated as follows:

Tartrate of potash	53·74	or 1 atom of tartrate of potash	= 115
Tartrate of soda..	46·26	1 atom of tartrate of soda..	= 99
	100·00	Weight of its atom	= 214

It does not appear to contain any water of crystallization.

Adulteration.—If this salt occur in large well defined transparent crystals, no adulteration is to be apprehended.

Incompatibles.—Most acids and acidulous salts, except the supertartrate of potash. By the action of the acids the tartrate of potash is converted into bitartrate or supertartrate. The acetate and subacetate of lead, barytic salts, and the salts of lime, are decomposed by this compound.

Medicinal uses.—Dose, as a purgative, from ʒij. to ℥j.

EARTHS AND THEIR SALTS.

Alūmĕn exsiccātum,

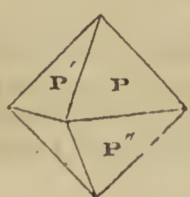
Dried Alum.

Let the alum melt in an earthen vessel over the fire, then increase the heat until ebullition has ceased.

Process.—By the heat the water of crystallization is driven off, and if it be too strong, a portion of the sulphuric acid is expelled with it, which ought to be avoided.

Composition.—Alum is a well known styptic, astringent, and acidulous salt; it is often met with in large crystals, the form of which is the *regular octahedron*:

P on P′ or P on P″ } 109° 28′ 16″



Alum is unaltered by exposure to the air; it dissolves in five times its weight of water at 60°, and hot water dissolves nearly three-fourths of its weight; the solution reddens vegetable blue colours, showing the excess of acid.

Composition.—Different views are entertained of the composition of this salt; it appears to consist of

Sulphuric acid	32·86	or 4 atoms acid....	40 × 4 = 160
Alumina	11·08	2 atoms alumina	27 × 2 = 54
Potash......	9·86	1 atom potash..........	= 48
Water	46·20	25 atoms water ..	9 × 25 = 225
	100·00	Weight of its atom	= 487

or we may consider it as composed of 2 atoms of sulphate of alumina, and 1 atom of bisulphate of potash.

Adulteration.—Alum sometimes contains iron, the presence of this may be determined by its giving a yellowish-red precipitate of peroxide on the addition of ammonia, more especially if the solution of the salt have been previously heated with a little nitric acid.

Incompatibles.—Alkalies and their carbonates; lime and lime water, magnesia and its carbonate, tartrate of potash, acetate of lead.

Officinal Preparations.—Alumen exsiccatum. Liquor Aluminis compositus.

Medicinal uses.—Alum is internally a powerful astringent in hæmorrhages and inordinate fluxes, and is externally useful for repellent astringent lotions and collyria. Dose gr. x. to gr. xx.

Lĭquor Alūmĭnis compŏsĭtus.

Compound Solution of Alum.

Take of Alum,
Sulphate of zinc, of each half an ounce,
Boiling water two pints;

Dissolve the alum and sulphate of zinc together in the water, then filter through paper.

Medicinal uses.—This solution is powerfully astringent, and is successfully used as a detergent lotion to old ulcers, as a collyrium and as an injection; it will also often remove chilblains, and relieve slight excoriations.

Crēta Præparāta.

Prepared Chalk.

Take of chalk a pound;

Add a little water to the chalk, and rub it into a fine powder. Put this powder into a large vessel full of water; then stir it, and, after a short interval, pour off the supernatant turbid water into another vessel, and set it by that the powder may subside; lastly, having poured off the water, dry the powder.

Process.—This method of preparing the variety of carbonate of lime called chalk, is termed elutriation, and is an effectual method of reducing it to a fine powder.

Qualities.—Chalk is a substance so well known that it is hardly requisite to notice its qualities. When pure it is very nearly white. It is dull, opaque, soft, and light, and it always occurs massive. Its sp. gr. is about 2·300; it is sometimes of a greyish tint, and then contains an admixture of foreign matter.

Composition.—By the analysis of Bucholz, chalk is composed of

Carbonic acid	43·
Lime	56·5
Water......	5
	100·0

The water is an accidental admixture, and, when perfectly pure, carbonate of lime is composed of

Carbonic acid ..	44	or of 1 atom of acid	= 22
Lime	56	1 atom of lime	= 28
	100	Weight of its atom	= 50

Adulteration.—Chalk is so cheap an article that accidental admixture only can be suspected. If, however, what is termed *grey chalk* be used, the prepared chalk will contain some foreign matter, and the colour will be less perfect.

Incompatibles.—Chalk, or carbonate of lime, is incompatible with acids and acidulous salts, for they combine with its base and expel the carbonic acid in the state of gas.

Officinal preparations.—Ammoniæ Subcarbonas, Calx, Hydrargyrum cum Creta, Mistura Cretæ, Confectio Aromatica.

Medicinal uses.—It is antacid and absorbent, and therefore it is useful in acidities of the primæ viæ, and in diarrhœa, after removing all irritating matters by previous evacuation. It is also a good application to ulcers discharging thin ichorous matter. Dose, gr. x. to gr. xl. or more.

Calx.

Lime.

Take of white marble a pound;

Break it into small pieces, and heat it in a crucible with a very strong fire for an hour, or until the carbonic acid is entirely expelled, so that dilute acetic acid when added excites no bubbles.

Process.—By the action of heat the carbonic acid is expelled from marble or carbonate of lime; and, as the pure part both of chalk and marble contains 44 per cent. of carbonic acid, 100 parts should furnish 56 of lime. If the quantity remaining exceed this, the excess must be derived either from earthy impurity, or from a portion of the marble or limestone remaining undecomposed by the heat. This process can hardly be regarded as a necessary one, for lime is always to be had. The impurities which limestone contains are insoluble in water, and unimportant in all cases for medicinal uses.

Qualities.—Pure lime is of a white colour, moderately hard, but easily reduced to powder; unlike the limestone from which it is procured, it is sonorous, although but slightly. It is inodorous, and has a burning, alkaline taste, and it corrodes animal substances. Vegetable blue colours are changed to green by lime, and yellow to brown, evincing its alkaline properties. By exposure to the air it imbibes moisture, and falls to pow-

der, and is gradually reconverted to the state of carbonate, by combining with the carbonic acid of the atmosphere.

When water is poured upon lime it becomes extremely hot, slacks and falls to powder, and combining with a portion of the water, is converted into hydrate of lime. Lime is slightly soluble in water, and the solution possesses alkaline properties. If lime be long exposed to atmospheric air, it loses its property of slacking, owing to its having combined with carbonic acid, and it is then unfit for use.

Composition.—Lime is the oxide of the metallic body calcium: it is composed of

Calcium......	71·42	or of 1 atom of calcium	= 20
Oxygen......	28·58	1 atom of oxygen	= 8
	100·00	Weight of its atom	= 28

Hydrate of lime, or, as it is usually termed, *slacked lime*, is composed of

Lime........	75·68	or of 1 atom of lime	= 28
Water.......	24·32	1 atom of water....	= 9
	100·00	Weight of its atom	= 37

Incompatibles.—All acids and acidulous salts, alkaline carbonates, ammoniacal salts, metallic salts, borates, and astringent vegetable infusions.

Officinal preparations.—Liquor Calcis, Liquor Ammoniæ, Liquor Potassæ, Potassa cum Calce, Calcis Murias, Liquor Calcis Muriatis.

Calx è Testis.

Lime from Shells.

Lime is also prepared in the same mode (by calcination) from *shells*.

The peculiar use of shell lime is not very obvious.

Liquor Calcis.

Lime-Water.

Take of Lime half a pound,
Distilled water twelve pints;
Pour the water upon the lime, and shake them together; then cover the vessel immediately, and set it aside for three hours; lastly, keep the solution with the remaining lime in stopped glass vessels, and when it is to be used take the clear solution.

Process.—This is a simple solution of lime in water. Unlike almost every substance, lime is more soluble in cold water than in hot: and when lime-water which has been prepared with cold water is heated, small crystals of lime are formed and deposited.

A pint of water at	32°	dissolves	11·0	grains of lime.
Ditto	60		9·7	ditto
Ditto	212		5·6	ditto

It appears by the above statement, that water at 32° dissolves nearly one-seventh more lime than water at 60°, and almost double the quantity dissolved by boiling water.

Qualities.—Lime-water has a disagreeable alkaline taste, but is devoid of smell. It turns vegetable blues green, and yellows brown; and it unites with oil, forming an imperfect soap. When lime-water is exposed to the atmosphere it absorbs carbonic acid, a thin crust of carbonate of lime is rapidly formed on the surface, and eventually the whole of the lime is precipitated from solution: on this account lime-water should be preserved from the air as carefully as possible.

Incompatibles.—Lime water is incompatible with the subtances already enumerated with respect to lime itself.

Medicinal uses.—It is antacid, and therefore useful in dyspepsia attended with acidity; it is also astringent in leucorrhœa, in the last stages of dysentery, and in protracted diarrhœa. Dose, in milk, f℥j. to f℥vj.

Calcis Mūrias.

Muriate of Lime.

Take of the Salt which remains after the sublimation of subcarbonate of ammonia two pounds,
Water a pint;
Mix, and filter through paper. Let the solution evaporate until the salt becomes dry: keep it in a well stopped vessel.

Process—It has been already observed, that the salt which remains after the sublimation of subcarbonate of ammonia, is generally considered to be chloride of calcium, and not a compound of muriatic acid and lime; the College, however, appear to retain the latter opinion. I shall state its composition according to both views of the subject; and first, as consisting of muriatic acid and lime: on this supposition, the salt is composed of

Dry muriatic acid ..	50	or 1 atom of dry acid	= 28
Lime	50	1 atom of lime ...	= 28
	100	Weight of its atom	= 56

On this view of the subject, muriatic acid is an undecomposed body; whilst, according to the experiments of Sir H. Davy, it is a compound of 36 of chlorine + 1 of hydrogen; and lime a compound of 20 calcium + 8 of oxygen. Muriate of lime can exist only in solution or combination with water. If, then, we heat a solution of muriate of lime to dryness, the changes that take place are—that the 37 of muriatic acid, consisting of 36 chlorine + 1 hydrogen, are decomposed; and the 36 of chlorine uniting with the 20 of calcium, forms 56 of chloride of calcium; while the 1 of hydrogen, expelled from the chlorine, combines with the 8 of oxygen separated from the calcium, and they form 9 of water, which are evaporated.

1 atom Water = 9

1 atom Hydrogen = 1 1 atom Oxygen = 8

37 = 1 atom Muriatic Acid 65 = 1 atom of Muriate of Lime 28 = 1 atom Lime

1 atom Chlorine = 36 1 atom Calcium = 20

1 atom Chloride of Calcium = 56.

Chloride of calcium is therefore composed of

Chlorine......	64·29 or	1 atom chlorine....	= 36
Calcium......	35·71	1 atom calcium....	= 20
	100·00	Weight of its atom	= 56

According to this statement, whenever a solution of muriate of lime is evaporated to dryness, it is decomposed; water is formed and evaporated, and chloride of calcium remains. On the other hand, according to the same views, when the chloride of calcium is dissolved in water, it decomposes that fluid, and muriate of lime is again formed, and remains in solution. The above diagram will explain both modes of viewing the subject. With few exceptions muriates, by evaporation to dryness, become chlorides; and chlorides dissolved in water are converted into muriates: it is, however, to be observed, that muriate of ammonia, not having an oxide for its base, is not a chloride in its anhydrous state.

Qualities.—Chloride of calcium is colourless and inodorous; its taste is very bitter and pungent. By exposure to the air it deliquesces, and is of course very soluble in water; so that, at 60°, water dissolves nearly four times its weight of the compound, and hot water a still larger quantity. It is also very soluble in alkohol. By evaporation the solution yields crystals containing a large quantity of water.

Incompatibles.—This salt is decomposed by sulphuric acid and by sulphates, by the alkalies, potash, soda, and their carbonates. If ammonia be added to the solution, no change occurs; but carbonate of ammonia decomposes it, and precipitates carbonate of lime.

For *Medicinal uses*, vide Liquor Calcis Muriatis.

Lĭquor Calcis Muriātis.

Solution of Muriate of Lime.

Take of Muriate of lime two ounces,
Distilled water three fluidounces;
Dissolve the muriate of lime in the water; then filter it through paper.

Process.—As few persons are in the habit of preparing subcarbonate of ammonia, they are consequently at a loss for the means of preparing this solution; it may, however, be obtained of the proper strength by the following process:

Take of White marble, or pure chalk, two ounces,
Muriatic acid, *by weight*, four ounces and five drachms, or enough to dissolve the marble,
Water four ounces;

Mix the muriatic acid and water; dissolve the carbonate of lime in the mixture; filter the solution, and evaporate it in a glass or earthen vessel, until there remain only five ounces and a half *by weight.*

The muriatic acid employed must be free from sulphuric acid; for if this be present, sulphate of lime will be formed and precipitated.

Incompatibles have been mentioned in the last article.

Medicinal uses.—Deobstruent and tonic; it is stated to have been advantageously given in bronchocele and scrofula. Dose, ♏xx. to f ʒj. or more.

Magnēsĭæ Subcarbōnas,

Subcarbonate of Magnesia.

Take of Sulphate of magnesia a pound,
Subcarbonate of potash nine ounces,
Water three gallons;

Dissolve separately the subcarbonate of potash in three pints of the water, and the sulphate of magnesia in five

pints of the water, and filter; then to the solution of sulphate of magnesia add the remaining water, and boil; and while it is boiling mix the former solution with it, stirring it constantly with a spatula; strain it through linen, and, lastly, wash the powder repeatedly with boiling water, and dry it at a heat of 200° upon bibulous paper.

Although sulphate of magnesia is an article of the Materia Medica, I shall take this opportunity of stating its qualities, crystalline form, and composition. It was originally called Epsom Salt, having been procured from a spring at that place.

Sulphate of magnesia is one of the saline ingredients of sea water, and for a long time it was procured only from the bittern remaining after the preparation of common salt; thus obtained it was usually mixed with so considerable a quantity of muriate of magnesia, that owing to the deliquescent property of this salt, the sulphate was usually damp. It has since been much better prepared from magnesian limestone, by a very ingenious process, invented by Dr. Henry, and the salt so prepared, not being mixed with muriate of magnesia, has no disposition to attract moisture from the air.

Sulphate of magnesia crystallizes with great readiness, and although the crystals are usually small, they may be obtained of considerable size by slowly cooling the solution. The primary form of this substance may be regarded as a *right prism* with a *rhombic base*, whose angles are 90° 30′ and 89° 30′.

There is only one cleavage, which is parallel to the short diagonal of the prism, and consequently to the plane *h* of the accompanying figures.

Fig. 1.

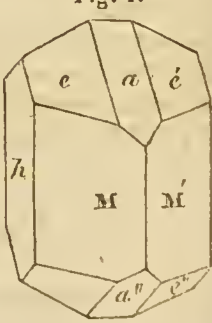


Fig. 1 represents a crystal of a form which frequently occurs, and of which the following are the measurements:

M on M′ (primary) . .	90°	30′
M on *h*	134	45
M on *e*	129	00
a on *a′*	120	nearly

Fig. 2

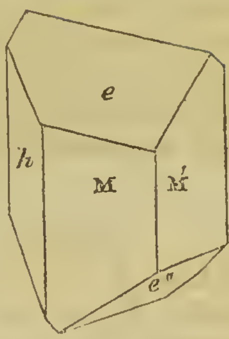


Fig. 2 represents a form in which the crystals also frequently appear. In this form, only two of the four planes *e* are seen on each summit, and alternating in position as shown in the figure.

On some of the crystals, however, which resemble this figure, the two other planes *e* may be perceived, but they are very minute.

Sulphate of magnesia is an extremely bitter salt, it is readily soluble in cold water, and still more so in hot water, the former dissolving an equal weight, and the latter one-third more; it is unalterable by exposure to the air, but when heated it loses its water of crystallization.

Composition.—Sulphate of magnesia is composed of

Sulphuric acid	32·52 or	1 atom of acid	= 40
Magnesia....	16·26	1 atom of magnesia ...	= 20
Water	51·22	7 atoms of water 9 × 7	= 63
	100·00	Weight of its atom	= 123

Adulteration.—If this salt be mixed with sulphate of soda, the quantity of pure sulphate of magnesia contained in any suspected salt, may be determined by ascertaining the quantity of carbonate of magnesia it will yield. Dissolve 100 grains of the salt in distilled water, and add to it a solution of an equal weight of subcarbonate of soda; boil the mixture, and wash and dry the precipitate; the carbonate of magnesia thus procured, should amount to 34 grains; if any deficiency occurs it is probably occasioned by an admixture of sulphate of soda. If sulphate of magnesia contain the muriate of the same earth, it will readilybe detected by its becoming moist.

Incompatibles.—Sulphate of magnesia is incompatible with the alkalies potash and soda, and their subcarbonates, but the bicarbonates do not decompose it until part of their carbonic acid is expelled by heat. Ammonia decomposes it but partially, and the subcarbonate not at all. Lime-water, and muriate of lime, are both incompatible with this salt, and so also are the acetates of lead.

Medicinal use.—Sulphate of magnesia is extensively employed as a purgative. Dose from ʒss. to ʒjss.

The process of preparing subcarbonate, or more correctly, carbonate of magnesia, from the sulphate, is one in which double decomposition takes place; the sulphuric acid and potash forming by their union sulphate of potash which remains in solution, while the carbonic acid and magnesia combine to form an insoluble compound, which is of course precipitated.

Sulphate of Potash.

Sulphate of Magnesia { Sulphuric Acid — Potash; Magnesia — Carbonic Acid } Subcarbonate of Potash.

Subcarbonate of Magnesia.

Qualities.—Subcarbonate of magnesia when pure is colourless, inodorous, tasteless, and unalterable in the air; it is insoluble in water; and is decomposed by a strong heat, which expels the carbonic acid.

Composition.—Subcarbonate of magnesia, termed correctly carbonate of magnesia, is composed of

Carbonic acid	52·4	or 1 atom acid	= 22
Magnesia ...	47·6	1 atom earth	= 20
	100·0	Weight of its atom	= 42

Adulteration.—If not sufficiently washed, subcarbonate of magnesia may contain sulphate of potash, which will be readily determined by dissolving it in dilute nitric acid, and adding nitrate of barytes to the solution. If it should contain any carbonate of lime, a solution of subcarbonate of ammonia will give a precipitate in the nitric solution, but not otherwise.

Incompatibles.—Acids and acidulous and metallic salts, muriate of ammonia, and lime-water.

Medicinal uses.—Antacid and purgative, and in lithic calculi in doses of ℈j. to ʒj.

Magnēsĭa,

Magnesia.

Take of subcarbonate of magnesia four ounces;

Heat it for two hours in a very strong fire, or until, when dilute acetic acid is dropped upon it, no bubbles are evolved.

Process.—The subcarbonate of magnesia, like the carbonate of lime, parts with its carbonic acid at a high temperature, and the magnesia remains in its pure or caustic state.

Qualities.—Colourless, inodorous, and tasteless if pure; it does not, like lime, become hot when mixed with water; it is very nearly insoluble in water, and although the moistened earth exhibits alkaline properties by turning vegetable blues green, and yellows brown, yet water in which it has been agitated does not dissolve enough to produce this effect, as lime-water readily does. By exposure to the air it slowly attracts carbonic acid and is reconverted to carbonate.

Composition.—Magnesia is the oxide of a peculiar metal, called magnesium, of which it is the only oxide known; it is composed of

Magnesium	60	or 1 atom metal .... =	12
Oxygen	40	1 atom oxygen .. =	8
	100	Weight of its atom =	20

Adulteration may be detected as in the subcarbonate of magnesia, and the

Incompatibles, excepting lime water, are also similar.

Medicinal uses.—Antacid, and when acidity prevails, purgative; it is preferable to the subcarbonate whenever the bowels are distended with flatus; in other respects its virtues are the same. Dose ʒss. to ʒj.

METALS AND THEIR SALTS.

PREPARATIONS OF ANTIMONY.

Antĭmōnii Sulphūrētum Præcipitātum.

Precipitated Sulphuret of Antimony.

Take of Sulphuret of antimony, powdered, two pounds,
Solution of potash, four pints,
Distilled water three pints,
Diluted sulphuric acid, as much as may be sufficient;

Mix the sulphuret of antimony, solution of potash, and water, and boil them over a slow fire for three hours, constantly stirring, and occasionally adding distilled water, that the same measure may be preserved. Strain the solution immediately through a double linen cloth, and while it is yet hot, drop in gradually as much dilute sulphuric acid as may be sufficient to precipitate the powder; then wash away the sulphate of potash with hot water, dry the sulphuret of antimony, and rub it into a fine powder.

Process.—Sulphuret of antimony is composed of

Antimony....	$73\frac{1}{3}$	or of 1 atom of metal....	= 44
Sulphur	$26\frac{2}{3}$	1 atom of sulphur ..	= 16
	100	Weight of its atom	= 60

When it is boiled in a solution of potash, a portion of water is decomposeed, the hydrogen of which combines with the sulphur, and the oxygen with the antimony. The solution formed consists of potash, oxide of antimony, sulphur, and hydrogen. When dilute sulphuric acid is added to it, sulphate of potash is formed, sulphuretted hydrogen evolved, and a compound of sulphur, sulphuretted hydrogen, and oxide of antimony, is precipitated. This precipitate is termed sulphuretted hydrosulphuret of antimony: according to M. Thenard, it is composed of

Sulphur.................	12·00
Sulphuretted hydrogen ...	17·87
Protoxide of antimony ...	68·30
Loss	1·83
	100·00

Qualities.—This preparation is of a bright orange colour, inodorous, and of a slightly styptic taste. It is insoluble in water, and is not acted upon by diluted acid, if it be pure; but if adulterated with chalk, it will then effervesce when they are mixed with it.

Officinal preparations.—Pilulæ Hydrargyri compositæ.

Medicinal uses.—It is but seldom employed, except in the above named preparation, being less certain in its operation than other antimonials. Dose, from gr. j. to gr. iv., twice a day, in herpetic and other eruptions. In large doses it is emetic.

Antimōnium Tartarizātum.

Tartarized Antimony.

Take of Glass of antimony reduced to a very fine powder,
Supertartrate of potash powdered, of each one pound,
Boiling distilled water a gallon;

Mix the glass of antimony perfectly with the supertartrate of potash, and add them gradually to the boiling distilled water, stirring it continually with a spatula; boil for a quarter of an hour, and set the solution by; filter it when cold, and evaporate it that crystals may form.

Process.—The method of preparing this very important medicine is materially altered, and exceedingly improved, in the present Pharmacopœia: but I think it is better to employ about one-tenth more of glass of antimony, and to boil the mixture for a longer time than is directed.

Glass of antimony is prepared by exposing the sulphuret to heat and air, by which the greater part of the sulphur is dissipated; and the antimony, by combining with the oxygen of the air, is converted into protoxide, consisting of

Antimony.....	84·62	or of 1 atom of metal ..	= 44
Oxygen	15·38	1 atom of oxygen .	= 8
	100·00	Weight of its atom	= 52

It is afterwards strongly heated in an earthen crucible, by combining with some of the silica of which it forms a species of glass, which is transparent, and of a red colour. It consists of protoxide of antimony combined with variable proportions of silica, and a little sulphur. A specimen that I examined contained only five per cent. of silica, which is less than is generally mentioned. The state of combination in which the sulphur exists, has not been, I think, clearly made out; that is to say, it is uncertain whether it is in combination with oxide of antimony, or whether its presence is owing to a portion of undecomposed sulphuret. I suspect, however, as generally supposed, that the former is the case, for the residuum insoluble in the supertartrate of potash has a red colour, resembling that of kermes mineral.

As glass of antimony is much cheaper than it was some years since, there is only one material objection to its use, and that

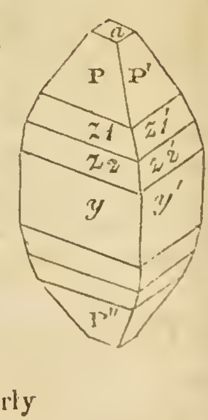
is, that glass of lead is sometimes mixed with, and occasionally altogether substituted for it; and their appearance is so similar, that the most experienced eye may be deceived: it is however easy to distinguish these substances by their chemical characters. I have observed that the insoluble portion of glass of antimony is of a red colour; but when glass of lead is boiled in a solution of supertartrate of potash, it is very soon rendered black, and scarcely any of it is dissolved. It is also easily detected by heating it in dilute nitric acid: if the solution contain lead, sulphuric acid will occasion a white precipitate in it.

The present process for making tartarized antimony is simple: supertartrate of potash, as already mentioned, contains excess of acid, and when a solution of it is boiled with glass of antimony, the protoxide of antimony is dissolved, while the sulphuretted oxide and silica remain unacted upon. The solution thus obtained consists of tartrate of potash and tartrate of antimony, and these combining form a double salt, called tartrate of potash and antimony, or tartarized antimony.

Tartarized Antimony, or
Tartrate of Potash and Tartrate of Antimony.

Supertartrate or Bitartrate of Potash	2 atoms Acid. 1 atom Potash	Protoxide of Antimony	Glass of Antimony
		Sulphuretted oxide of Antimony, and Silica	

Qualities.—Tartarized antimony crystallizes with great facility, and the general character of the crystals of this compound is that of an *octahedron with a rhombic base.* One distinct cleavage only has been obtained, which is parallel to the plane *a* of the accompanying figure. The planes *z* and *y* are generally striated.



The following are the nearest to coinciding measurements taken on several crystals:

P on P'..................	108°	16'
P over the edge on the left..	104	15
P on z_1	166	40
P on z_2	165	40 nearly
a on P, or P'	122	00
a on *y*..................	90	00

The crystals of this salt are colourless and inodorous, but have a styptic metallic taste: on exposure to the air, they effloresce slightly, and become opaque. When heated with carbonaceous matter this salt is decomposed, and metallic antimony is obtained. It is soluble in about fifteen times its weight of water at 60°, and twice its weight at 212°. The aqueous solution decomposes spontaneously after it has been some time prepared. It is insoluble in alkohol.

Composition.—This is a double salt, or a compound of tartrate of potash and tartrate of antimony; but I am not satisfied with the results of any analysis hitherto given—that which is generally quoted, is obviously incorrect.

Adulteration.—This salt should never be purchased in powder, but always in crystals: in the former state it frequently contains a portion of supertartrate of potash uncombined with any oxide, and which, in preparing the liquor antimonii tartarizati is precipitated. To judge if the crystals have been properly prepared, drop one or two into a solution of sulphuretted hydrogen gas, and an orange-coloured deposite will be formed on them.

Incompatibles.—The solution of this salt is decomposed by acids, by alkalies and their carbonates, by some of the earths and metals, and their oxides, by lime-water, muriate of lime, and the acetates of lead. Many vegetable infusions, and especially those which are bitter and astringent, decompose it, such as cinchona, rhubarb, catechu, &c.

Medicinal uses.—Tartarized antimony either sweats, vomits, or purges, according to the quantity exhibited. A *quarter of a grain*, if the skin be kept warm, will promote a diaphoresis; *half a grain* will first prove purgative, and then diaphoretic; and *one grain* will generally vomit, then purge, and lastly sweat the patient. It may be given in solution.

Vīnum Antimōnĭi Tartarizāti.

Wine of Tartarized Antimony.

Take of Tartarized Antimony a scruple,
Boiling distilled water eight fluidounces,
Rectified spirit two fluidounces;
Dissolve the tartarized antimony in the boiling distilled water, then add the spirit to the filtered solution.

Process.—The College have substituted diluted spirit for wine in this and several other preparations. When tartarized antimony has been carelessly prepared, and contains supertartrate of potash uncombined with oxide of antimony, it is precipitated from solution in water by spirit; those practitioners, therefore, who purchase tartarized antimony, should insist on having it in the state of crystals, in which there is but little chance of the occurrence of this imperfection. A fluid-ounce of this preparation contains two grains of tartarized antimony. If any deposite should be observed in this solution, it ought to be rejected.

Pulvis Antimōniālis.

Antimonial Powder.

Take of Sulphuret of Antimony, powdered, a pound,
Hartshorn shavings two pounds;

Mix and throw them into a wide crucible, heated to whiteness, and stir them constantly till visible vapour ceases to arise. Rub what remains into powder, and put it into a proper crucible; then apply fire to it and raise it gradually, so that it may be white hot for two hours. Rub the residuum into a very fine powder.

Process.—Sulphuret of antimony, as already mentioned, consists of sulphur and antimony; hartshorn shavings are composed of phosphate of lime mixed with carbonaceous animal matter. When the sulphuret and hartshorn are heated together, the sulphur is expelled in vapour; and the antimony, combining with the oxygen of the air, is converted into oxide of antimony. Part of the animal matter is dissipated by the heat, but the phosphate of lime suffers no change; there remains, therefore, in the crucible, a mixture of oxide of antimony and phosphate of lime, forming Pulvis Antimonialis.

Qualities.—Pulvis antimonialis is an inodorous insipid powder, of a dull white colour. It is insoluble in water, and only partially soluble in acids; if, however, the antimony it contains were in the state of protoxide, as has been stated, then muriatic acid, when heated, would dissolve it entirely.

Composition.—In consequence of Dr. Elliotson's statement, that he had exhibited upwards of 100 grains of pulvis antimonialis without producing any effect, I procured specimens of this preparation from two respectable sources, and subjected them to analysis. I found one of them to consist of

Peroxide of antimony	35
Phosphate of lime	65
	100

The other yielded

Peroxide of antimony	38
Phosphate of lime	62
	100

According to Dr. Latham 60 grains of peroxide of antimony may be exhibited for a dose; and Dr. Duncan states that it is perfectly inert; the analysis of this preparation fully accounts therefore for its inefficiency. It appears, however, from Mr. Brande's statement, that pulvis antimonialis is worse than powerless, for it is uncertain: he states that it sometimes contains peroxide of antimony; on other occasions, a portion of protoxide; and in some few cases nearly all the oxide of antimony had been volatilized, so that little but phosphate of lime was left.

I have also analyzed James's Powder, of which the pulvis antimonialis is a professed imitation: I found it to consist nearly of

Peroxide of antimony ...	56
Phosphate of lime	44
	100

These proportions agree almost exactly with the results obtained by Dr. Pearson; and it is evident that it is as inert a preparation as the pulvis antimonialis. The peroxide of antimony contained in these medicines consists of

Antimony........	$73\frac{1}{3}$	or 1 atom metal	= 44
Oxygen	$26\frac{2}{3}$	2 atoms oxygen ..	= 16
	100	Weight of its atom	= 60

Pulvis antimonialis appears to differ chiefly from the antimonium calcinatum omitted in the Pharmacopœia of 1809, in being mixed with a large quantity of phosphate of lime.

Adulteration.—No doubt can be entertained that this preparation, like every other, has been sophisticated; but owing to want of power in the genuine article, the practitioner probably has not been disappointed by its adulteration.

Medicinal uses.—It is stated to be diaphoretic, alterative, emetic, or purgative, according to the extent of the dose and the state of the patient. The doses mentioned are from gr. v. to gr. x. It is worth the consideration of the practitioner, whether the use of this preparation may not be altogether superseded by that of tartarized antimony.

PREPARATION OF SILVER.

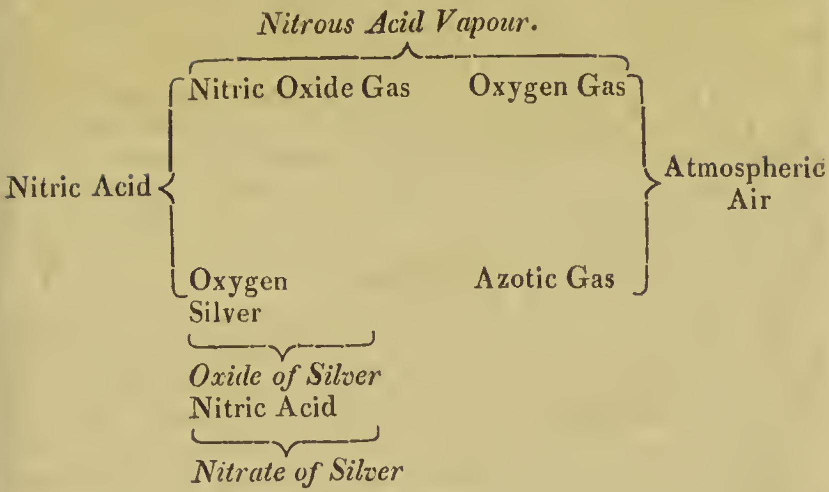
Argenti Nītras.

Nitrate of Silver.

Take of Silver an ounce,
Nitric acid a fluidounce,
Distilled water two fluidounces;

Mix the nitric acid with the water, and dissolve the silver in the mixture on a sand-bath. Then gradually increase the heat, so that the nitrate of silver may be dried. Melt this in a crucible in a slow fire, until the water being expelled, the ebullition ceases; then pour it immediately into proper moulds.

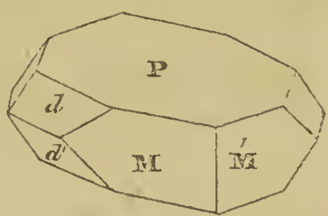
Process.—Nitric acid is composed of oxygen and azote, and when silver is dissolved in it, a portion of the acid is partially decomposed into nitric oxide gas and oxygen; the former escapes into the atmosphere, and separating a portion of its oxygen from admixture with the azotic gas, red vapours of nitrous acid are formed by their union. The oxygen of the decomposed acid unites with the silver to form oxide of silver, and this is dissolved by the nitric acid undecomposed, and converted into nitrate of silver.



The proportion of nitric acid is too large, for it is capable of dissolving nearly one half more silver than is directed.

Qualities.—Solution of nitrate of silver readily yields transparent colourless crystals, the primary form of which is *a right rhombic prism.*

P on *d*..............	116°	36′
M on *d*	148	0
M on M′............	129	31
d on *d*′..............	126	48



In some crystals the planes *d* are barely visible, while in others those planes encroach so much on M and M′ as to leave only minute portions of them discernible.

Water, at the temperature of 60° dissolves its own weight of this salt. It is not deliquescent. By exposure to a strong light it becomes brown, owing to the reduction of a part of the silver to the metallic state. When moderately heated it readily melts, swells, and then remains liquid. On cooling it forms a grey-coloured mass, having a striated and crystalline structure. If exposed to a red heat it is decomposed. It stains the skin black : the crystals contain no water.

Composition.—Nitrate of silver is composed, nearly, of

Nitric acid....	68·61	or 1 atom of acid.... =	54
Oxide of silver	31·39	1 atom of oxide... =	118
	100·00	Weight of its atom =	172

Adulteration.—Fused nitrate of silver is very commonly of a dark colour; this may have been caused by its exposure to light, or by its fusion at too high a temperature, in both which cases the nitrate is partly decomposed. The dark colour may also depend upon the use of silver containing copper, the peroxide of which is nearly black. To detect this, add a solution of ammonia to one of the suspected nitrate of silver: if it contain copper, a deep blue compound will be formed. Lunar caustic may possess a dark colour without much diminution of its power; but it is better that it should be greyish white.

Incompatibles.—Almost all spring and river water, soaps; potash, soda, and their carbonates, lime-water; the sulphuric, muriatic, and tartaric acids, and the salts which contain them, decompose a solution of nitrate of silver. Ammonia does not produce any precipitation, but its carbonate does; it is also decomposed by liquor arsenicalis, sulphuretted hydrogen and hydro-sulphurets, and astringent vegetable infusions.

Medicinal uses.—It is the most manageable and powerful of all escharotics. Internally it is tonic and antispasmodic, and has been especially exhibited in cases of epilepsy; when it has been long taken, it is sometimes deposited in the rete mucosum, so as to give a permanent dark purple hue to the patient. Dose *one-eighth of a grain* gradually increased to *one grain.* It should be made into pills with crumb of bread, and mixed with a little sugar to prevent the mass from being too hard.

PREPARATIONS OF ARSENIC.

Arsenĭcum Album Sublimātum.

Sublimed White Arsenic.

Rub white arsenic into powder; then put it into a crucible, and applying heat, sublime it into another crucible inverted over the former.

Process.—This operation appears to be unnecessary, for it is impossible for white arsenic to be purer than as it is met with in the shops in large masses, which, externally, are usually opaque, but internally, when recently broken, semitransparent, and possessing the appearance of a yellowish glass.

Qualities.—White arsenic, called also oxide of arsenic, and arsenious acid, is moderately hard and brittle, it is inodorous, its taste acrid and corrosive, and it is proverbially poisonous. Its specific gravity, when transparent, I find to be 3·715, and when opaque 3·260; the opacity I believe to be owing to the absorption of water from the atmosphere. Arsenious acid is volatilized at the temperature of about 380°, and when thus vaporized, it is inodorous, although usually stated to possess an alliaceous smell, which belongs only to volatilized metallic arsenic. One part of arsenious acid is soluble in 400 times its weight of water at 60°, and in 13 times its weight at 212°; as the solution cools small crystals are deposited, the form of which is the regular octahedron. The solution reddens litmus paper slightly, and combines with the alkalies potash and soda, with great facility, on which accounts it is usually termed arsenious acid; when heated in nitric acid it absorbs more oxygen, is rendered much more powerfully acid, and is then called arsenic acid.

Composition.—Arsenious acid, or white arsenic, is a compound of the metallic body arsenic and oxygen, in the proportions of

Arsenic....	70·37	or 1 atom of metal	= 38
Oxygen ...	29·63	2 atoms oxygen 8×2	= 16
	100·00	Weight of its atom	= 54

Lĭquor Arsenĭcālis.

Arsenical Solution.

Take of Sublimed white arsenic, rubbed into a very fine powder,
Subcarbonate of potash, from tartar, of each sixty-four grains,
Compound spirit of lavender four fluidrachms,
Distilled water a pint;

Boil the white arsenic and subcarbonate of potash with the water in a glass vessel, until all the arsenic is dissolved. To the cold solution add the compound spirit of

lavender. Lastly, add as much distilled water to the solution, as may be sufficient to make it exactly fill a pint measure.

Process.—This solution is a mixture of arsenite and subcarbonate of potash. In preparing it, the powdered white arsenic usually sold, should never be employed. It is very commonly adulterated with sulphate of lime or gypsum, which renders the solution weaker, and being insoluble in the subcarbonate of potash, the operator supposes that it is difficult to prepare the liquor arsenicalis. This adulteration, and most others likely to occur in white arsenic, may be detected by heating the powder in a crucible; whatever is not volatilized is an impurity.

The subcarbonate of potash, prepared in the usual mode, answers the purpose perfectly; and the arsenious acid so readily dissolves in the heated solution of it, that if reduced only to a coarse powder, it disappears in a few minutes after the commencement of ebullition.

Incompatibles.—Acids and acidulous salts, sulphuretted hydrogen and its compounds, lime-water; earthy salts, such as alum, sulphate of magnesia, and muriate of lime; metallic salts, as sulphate and muriate of iron, nitrate of silver, and sulphate of copper; decoction of cinchona.

Medicinal uses—This solution is a powerful tonic: it is especially employed in intermittent and remittent fevers, periodic head aches, and some diseases of the skin. Dose *four minims* to *thirty minims*, twice a day.

PREPARATION OF BISMUTH.

Bismūthi Subnītras.

Subnitrate of Bismuth.

Take of Bismuth an ounce,
Nitric acid a fluidounce and a half,
Distilled water three pints;

Mix six fluidrachms of the distilled water with the nitric acid, and dissolve the bismuth in the mixture: then filter the solution. Add the remainder of the water to the filtered fluid, and set it by that the powder may subside. Lastly, having poured off the supernatant fluid, wash the subnitrate of bismuth with distilled water, and dry it, wrapped in bibulous paper, with a gentle heat.

This preparation is now first introduced into the Pharmacopœia. Bismuth is a metal of a reddish white colour, its structure is usually crystalline, and by cautious cooling after it has been melted, it may be made to assume the cubic form. It is a brittle metal; its specific gravity is 9·882; it melts at the temperature of 476°.

Process.—In preparing the nitrate of bismuth, the nitric acid is partly decomposed, with the occurrence of phœnomena similar to those which have been described, as taking place during the solution of silver in the same acid. The solution of nitrate of bismuth is colourless, and by evaporation it yields crystals, composed, nearly, of

Nitric acid......	33·5
Oxide of Bismuth.	49·7
Water..........	16·8
	100·0

The oxide of bismuth consists of

Bismuth..........	90
Oxygen..........	10
	100

When water is added to the solution of nitrate of bismuth, as directed in the Pharmacopœia, it combines with the greater part of the acid; and the oxide of bismuth is precipitated, in combination with some water and a little nitric acid, forming subnitrate of bismuth.

Qualities.—This substance was formerly employed as a cosmetic, under the name of magistery of bismuth. It is a white, inodorous, tasteless powder, insoluble in water and dilute acids, but dissolved by the concentrated acids, and again precipitable by water. The alkalies potash and soda, also dissolve oxide of bismuth, but sparingly; it is more soluble in solution of ammonia. It is rendered black by sulphuretted hydrogen and its compounds.

Medicinal uses.—This medicine is represented to possess antispasmodic powers, and to be especially serviceable in those forms of dyspepsia, which are attended with painful contractions of the stomach. Dose, from gr. v. to gr. xv.

PREPARATIONS OF COPPER.

Cūprum Ammoniātum.

Ammoniated Copper.

Take of Sulphate of copper half an ounce,
Subcarbonate of ammonia six drachms;
Rub them together in a glass mortar, until the effervescence ceases; then dry the ammoniated copper, wrapped in bibulous paper, with a gentle heat.

Process.—Sulphate of copper is a well-known crystalline salt of a fine blue colour; it consists of

Sulphuric acid	32
Peroxide of copper	32
Water	36
	100

When it is mixed with the subcarbonate of ammonia, double decomposition takes place, sulphate of ammonia and subsulphate of copper are formed, and the carbonic acid is evolved with effervescence.

Carbonic Acid *Gas* + Ammonia } Subcarbonate of Ammonia

Sulphate of Copper + Subcarbonate of Ammonia

Subsulphate of Copper and Sulphate of Ammonia

Cuprum Ammoniatum.

This preparation however is, frequently, not a mere mixture of subsulphate of copper and sulphate of ammonia, for the ammonia of the subcarbonate is sufficient to saturate three times the quantity of sulphuric acid in the sulphate of copper; there is probably therefore some excess of subcarbonate of ammonia, the proportion of which must depend upon the temperature at which the medicine is dried.

Qualities.—Cuprum ammoniatum has a very fine azure blue colour, which is more intense when it has been very gently dried, so as to leave some excess of subcarbonate of ammonia; its smell is then ammoniacal. Its taste is styptic and metalline.

Incompatibles.—This preparation is incompatible with acids, the alkalies potash and soda, and with lime-water.

Officinal preparations.—Liquor Cupri Ammoniati.

Medicinal uses.—It is tonic and antispasmodic. It has been employed in chorea, and also advantageously in epilepsy. Dose *one quarter of a grain*, cautiously increased to *five grains*, twice a day. It is given in the form of pills, made up with crumb of bread.

Lǐquor Cūpri Ammōniāti.

Solution of Ammoniated Copper.

Take of Ammoniated copper a drachm,
Distilled water a pint;
Dissolve the ammoniated copper in the water, and filter through paper.

Qualities.—This solution has a fine blue colour, but unless the cuprum ammoniatum has some excess of subcarbonate of ammonia, I have found that it is decomposed, and one half of the

oxide of copper precipitated, by so large a quantity of water as here directed; whereas a smaller portion dissolves it perfectly.

Medicinal uses.—It is detergent and mildly escharotic. When still more largely diluted, it is employed for removing specks from the cornea.

PREPARATIONS OF IRON.

Ferri Sulphas.

Sulphate of Iron.

Take of Iron,
Sulphuric acid, each by weight, eight ounces,
Water four pints;

Mix the sulphuric acid with the water in a glass vessel, and to these add the iron; then, when bubbles cease to escape, filter the solution through paper, and evaporate it over the fire so that as it cools crystals may form. Having poured off the solution, dry the crystals upon bibulous paper.

Process.—Concentrated sulphuric acid and iron do not act upon each other at common temperatures, but if the acid be diluted with water, rapid action takes place. Water consists of oxygen and hydrogen, and a portion of it is decomposed by the action of the sulphuric acid and iron. Its oxygen combines with the iron to form oxide of iron, and its hydrogen being set at liberty, assumes the elastic form and is evolved in the state of gas. The oxide of iron is dissolved by the sulphuric acid, and sulphate of iron is formed.

Water { Hydrogen *Gas*
Water { Oxygen. Iron Sulphuric acid

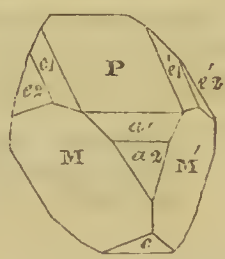
(Oxygen + Iron) → *Oxide of Iron*

(Oxide of Iron + Sulphuric acid) → *Sulphate of Iron.*

The solution of sulphate of iron thus obtained, is of a blueish green colour, the iron being in the state of protoxide; if it be exposed to the air, it first loses its blue tint, owing to the absorption of oxygen, which converts the protoxide into peroxide of iron, and eventually it becomes of a red colour.

The quantity of sulphuric acid directed to be used, exceeds that required to dissolve the iron, nearly in the proportion of 8 to 5.

Qualities.—The primary form of sulphate of iron is *an oblique rhombic prism*, M M′ and P of the annexed figure being the primary planes, the crystals sometimes exhibit the secondary planes *a* and *e*.



P on M, or M′	99°	20′
M on M′	82	20
P on e_1	153	00
P on e_2	123	55
P on a_1	159	00
P on a_2	136	10

The crystals, when recently formed, are of a blueish green colour; by exposure to the air the protoxide of iron which the salt contains, attracts oxygen, and the yellow colour of the peroxide of iron formed, renders the crystals green by admixture with the blue protosulphate of iron. When the exposure has been long continued, the surface of the crystals is encrusted with peroxide of iron, and they ought then to be rejected; the solution, as already noticed, attracts oxygen, and it is rendered first green and then red, depositing at the same time a considerable quantity of peroxide of iron.

Sulphate of iron has a disagreeable styptic taste, reddens vegetable blue colours, and is soluble in about two parts of cold and 3-4ths of its weight of boiling water. The solution is precipitated of a greenish white by alkalies, the oxide thrown down gradually absorbs oxygen, and becomes red, or peroxide of iron; when free iron peroxide of iron, the ferrocyanate of potash occasions a white precipitate which becomes speedily blue by exposure to the air. When the solution has absorbed oxygen by exposure to the air, it then gives immediately a blue precipitate with the same test, and a black one with astringent vegetable infusions and tinctures.

By exposure to a moderate heat the crystals lose 6-7ths of their water, and become white; subjected to a strong heat they are decomposed, yielding a peculiar kind of sulphuric acid, and peroxide of iron.

Composition.—There are two oxides of iron, the black or protoxide, which enters into the composition of this salt, and the red or peroxide. They consist of the following proportions of iron and oxygen :

Oxide or Protoxide				Peroxide			
Iron . .	77·7	or 1 atom	=28	Iron . .	70	or 2 atoms	=56
Oxygen	22·3	1 atom	= 8	Oxygen	30	3 atoms	=24
	100·0	Weight of its atom	=36		100	Weight of its atom	=80

The peroxide of iron is that which exists in the Tinctura ferri muriatis, and some other preparations presently to be noticed. Sulphate of iron consists of

Sulphuric acid	28·8	or 1 atom acid	=40
Protoxide of iron . .	25·9	1 atom oxide	= 36
Water	45·3	7 atoms water	= 63
	100·0	Weight of its atom	= 139

Adulteration.—Sulphate of iron, called in the arts copperas or green vitriol, is an impure article often used for medicinal purposes instead of that prepared directly from iron. It is of a green colour, shewing that it contains much peroxide of iron: and sometimes it contains oxide of copper; this may be detected by immersing in a solution a clean polished plate of iron, upon which the copper will be deposited in its metallic state.

Incompatibles.—Ammonia, potash, soda and their carbonates, lime water, and muriate of lime, nitrate of silver, the acetates of lead, and soaps. The salts of barytes and strontia, as well as the earths they contain, are incompatible with this salt. It is decomposed also by astringent vegetable bodies.

Officinal preparations.—This salt is employed in preparing Ferri subcarbonas, Mistura Ferri composita, and Pilulæ Ferri compositæ.

Medicinal uses.—Tonic, astringent, emmenagogue, and anthelmintic; in large doses, it occasions griping in the bowels. Dose gr. j. to v. It should never be given in solution, without previously boiling the water, to free it from atmospheric air, the oxygen of which is readily absorbed, and the sulphate of iron decomposed by it.

Ferri Subcarbōnas.

Subcarbonate of Iron.

Take of Sulphate of iron eight ounces,
Subcarbonate of soda six ounces,
Boiling water a gallon;

Dissolve the sulphate of iron and subcarbonate of soda separately in four pints of water; then mix the solutions, and set the mixture by, that the powder may subside; afterwards, having poured off the supernatant liquor, wash the subcarbonate of iron with hot water, and dry it, wrapped in bibulous paper, with a gentle heat.

Process.—The quantity of subcarbonate of soda is too small to decompose sulphate of iron, in the proportion of 6 to 8·8. When the solutions are mixed, double decomposition takes place. The sulphuric acid of the sulphate of iron combines with the soda of the subcarbonate, while the oxide of the sulphate of iron unites with the carbonic acid separated from the soda. The sulphate of soda remains in solution; but the carbonate of iron, being insoluble, is precipitated.

Sulphate of Soda

Sulphate of Iron	Sulphuric Acid	Soda	Carbonate of Soda
	Oxide of Iron	Carbonic Acid	

Carbonate of Iron

Composition and Qualities.—This preparation is usually of a deep red colour; and it consists generally of about

Carbonate of iron	4
Peroxide of iron	96
	100

I have procured this preparation from several respectable sources, but have never found it to contain five per cent. of carbonate of iron: the reason of this is, that unless it be washed with hot water, and then speedily dried, the protoxide of iron absorbs oxygen, and being converted into peroxide, it is no longer capable of remaining combined with carbonic acid; for a solid percarbonate of iron cannot be formed, though it may probably exist in solution.

When preparing this compound with the greatest care, I have found it to contain about 15 per cent. of carbonic acid, which indicates its composition to be

Carbonate of iron	40
Peroxide of iron	60
	100

From the great affinity which exists between iron and oxygen, and from the rapidity with which the protoxide absorbs it, so as to form peroxide, it seems to be impossible to procure a perfect carbonate or subcarbonate of iron.

Ferri subcarbonas when it has been carefully made, has a reddish-brown colour; it dissolves readily in acids with effervescence, and yields 15 per cent. of carbonic acid during solution. When improperly prepared it contains only about 1·5 per cent. of carbonic acid, its colour is less brown, and it is not so easily dissolved by acids.

When this preparation contains a large proportion of carbonic acid, it is much more readily soluble, and its activity as a medicine is probably proportional to the quantity of that acid present.

Incompatibles.—Acids and acidulous salts, which dissolve it with effervescence.

Officinal preparations.—Ferrum Ammoniatum, Tinctura Ferri Muriatis.

Medicinal uses.—Tonic and emmenagogue. Dose, from gr. v. to xxx. combined with myrrh or aromatics. In doses of half a drachm to a drachm, two or three times a day, it is said to have proved efficacious in Tic doloreux.

Tinctūra Ferri Muriātis,

Tincture of Muriate of Iron.

Take of Subcarbonate of iron half a pound,
Muriatic acid a pint,
Rectified spirit three pints ;

Pour the acid upon the subcarbonate of iron in a glass vessel, and shake it occasionally for three days. Set it by, that the dregs, if there be any, may subside; then pour off the solution, and add the spirit to it.

Process.—The muriatic acid decomposes the carbonate of iron, expelling the carbonic acid gas with effervescence, dissolving the protoxide of iron with which it was combined, and also the peroxide of iron. I find that the proportions here directed answer extremely well, for less than one scruple of the subcarbonate of iron remains undissolved, including the accidental impurity which it may contain.

When this tincture is made with subcarbonate of iron, containing 15 per cent. of carbonic acid, it is a mixed solution of protomuriate and permuriate of iron in spirit; and its preparation from carbonate of iron is attended with this inconvenience, that the protoxide of iron becomes peroxide by absorbing oxygen, and part of it is precipitated, which renders the tincture liable to diminish and vary in strength.

As Tinctura ferri muriatis is esteemed to be one of the most active of all the preparations of iron, I have paid particular attention to the preparation of it, and have procured it from several respectable sources for the purpose of examining the proportion of iron which it contains.

The specific gravity of four different samples, and the proportions of peroxide of iron obtained from half a fluidounce of each, were as follows :

No. 1,	sp. gr. 1·030	Peroxide of iron	20· grains
2,	0.975		11·3
3,	0·951		9·3
4,	1·003		12·1

Finding these great variations in the specific gravities, and the quantities of oxide contained in these samples, I prepared some of the tincture precisely according to the directions of the College, and found its sp. gr. and the peroxide of iron yielded by half a fluidounce, were as follows:

Specific gravity 0·994 Peroxide of iron 16·8 grains.

It is difficult to account for the excess of iron in the sample No. 1, but the deficiency of the remainder is readily explained by supposing, that the muriatic acid employed was too weak to dissolve the assigned portion of the subcarbonate.

Qualities and Composition.—This tincture is of a reddish-brown colour, its taste is extremely styptic, and its odour resembles that of muriatic ether. When prepared, as it usually is, from peroxide of iron nearly unmixed with carbonate, it is almost entirely permuriate of iron, and each fluidrachm contains nearly 4·2 grains of peroxide of iron.

Incompatibles.—Alkalies and their carbonates, lime-water, carbonate of lime, magnesia and its carbonate. It is rendered black by astringent vegetable bodies, and is decomposed by a solution of gum arabic.

Medicinal uses.—When made with proper care it is one of the most certain and active preparations of iron; for the metal being in the state of peroxide, it remains for a very long time without suffering any variation of strength from decomposition. Dose ♏x. to ♏xxx. or f℥j.

It is stated to be particularly useful as a tonic in scrofula; in dysuria, ♏x. given every ten minutes until some sensible effect is produced, afford speedy relief; and it is a powerful styptic in hemorrhage from the bladder, kidneys, or uterus. It is used externally as a styptic in cancerous and fungous sores, and for the purpose of destroying venereal warts.

Ferrum Ammoniātum.

Ammoniated Iron.

Take of Subcarbonate of iron,
Muriatic acid,
Muriate of ammonia, each, a pound;

Pour the muriatic acid upon the subcarbonate of iron, and set it by till bubbles cease to be evolved. Filter the

solution through paper, and boil it until all the moisture is evaporated. Mix the residuum intimately with the muriate of ammonia; then subject them directly to a strong fire, and sublime: lastly, rub the sublimed matter to powder.

Process.—In this preparation, as in the last, the subcarbonate is decomposed by the muriatic acid; and the dry muriate of iron obtained by evaporation is to be sublimed in mixture with muriate of ammonia. From what has been stated of the accuracy of the proportions of subcarbonate of iron and muriatic acid employed in preparing the tinctura ferri muriatis, it will appear, that in this case, a large proportion of the subcarbonate of iron must remain undissolved. In the former preparation the proportions are six parts, by weight, of the subcarbonate, to rather more than $17\frac{1}{2}$ of muriatic acid; in this, equal weights are directed to be used, and, consequently, but little more than one-third of the subcarbonate of iron will be dissolved.

I attempted to form ferrum ammoniatum by subliming a mixture of the two muriates; but I did not succeed in obtaining a good product. The evaporation of the solution of muriate of iron is an extremely unpleasant operation, and should be conducted under a chimney.

Ferrum ammoniatum is, I believe, usually prepared by mixing powdered muriate of ammonia with a solution of permuriate of iron, and evaporating the mixture to dryness; in this case it is a yellow powder, its taste is styptic and saline. When prepared by sublimation it has an orange-colour.

Composition.—This preparation appears to be a mixture of muriate of ammonia, and permuriate (or probably perchloride) of iron. I have examined two specimens of it, in order to ascertain the quantity of peroxide of iron which it yields: the first of these had an orange colour, and, I have no doubt, was prepared by sublimation; the other was yellow, and procured, I believe, by evaporation:

No. 1,	200 grains	gave	3 grains	of peroxide of iron
2,	200	do.	2·1	do.

If muriate of ammonia increases the medicinal powers of iron, it would I think be better to prepare ferrum ammoniatum by boiling to dryness a mixed solution of muriate of ammonia and permuriate of iron. Dr. Paris justly observes that this prepara-

tion is so uncertain in its composition and effects, that it is rarely used; to these reasons for its disuse, may be added the small quantity of oxide of iron which it contains, compared with that of muriate of ammonia.

Incompatibles.—This preparation is decomposed by the alkalies and their carbonates, the peroxide of iron being precipitated, and ammonia evolved; lime-water produces a similar effect; and like other preparations of iron it is rendered black by astringent vegetable infusions.

Officinal preparations.—Tinctura Ferri Ammoniati.

Medicinal uses.—It is stated to be tonic, emmenagogue and aperient. Its dose may be estimated by what I have stated respecting its composition.

Tinctūra Ferri Ammoniāti.

Tincture of Ammoniated Iron.

Take of Ammoniated iron four ounces,
Proof spirit a pint;
Digest and filter.

Process.—This is a mere solution of ammoniated iron, and an extremely weak preparation. I examined three samples of it obtained from different sources, and found that a fluidounce and a half of the strongest contained only 3·9 grains of peroxide of iron; the next in power yielded only 1·5 grain, and the weakest 1·1 grain. To exhibit therefore as much oxide of iron as is contained in a fluidrachm of tinctura ferri muriatis, nearly f℥ 13 of the strongest of these tinctures must be given.

Incompatibles.—See Ferrum Ammoniatum.

Liquor Ferri Alkalini.

Solution of Alkaline Iron.

Take of Iron two drachms and a half,
Nitric acid two fluidounces,
Distilled water six fluidounces,
Solution of subcarbonate of potash six fluidounces;

The acid and water being mixed together, pour them upon the iron, and when bubbles cease to escape, pour off the acid solution. Add this gradually and at intervals, to the solution of subcarbonate of potash, frequently shaking it, until it has acquired a brownish red colour, and no more bubbles are evolved. Lastly, set it by for six hours, and pour off the solution.

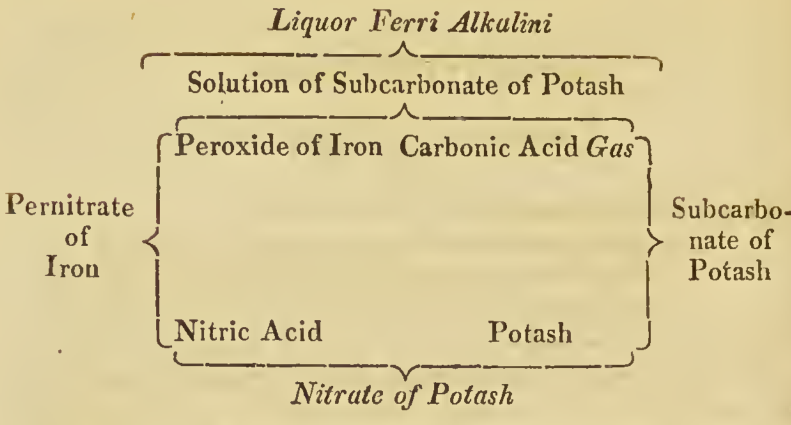
Process.—The nitric acid is decomposed by the iron, which is converted into peroxide, while nitric oxide gas, resulting from the decomposition of the acid, is evolved.

The solution obtained is a pernitrate of iron, with excess of acid; when this is poured into the solution of subcarbonate of potash, double decomposition takes place; the nitric acid is evolved, and the peroxide of iron, which is for a moment precipitated, is redissolved by the undecomposed subcarbonate of potash; the solvent power of which is probably increased by its retaining a part of the carbonic acid, resulting from the decomposition of a portion of it. Nitrate of potash is formed by the union of the nitric acid and potash, and crystals of this salt are formed, from which the clear solution, which is liquor ferri alkalini, still retaining some nitrate of potash, is to be poured off.

Nitric Acid { Nitric Oxide *Gas.* / Oxygen

Oxygen + Iron → *Peroxide of Iron*

Peroxide of Iron + Nitric Acid → *Pernitrate of Iron*



Qualities.—This preparation has a deep red colour ; it is inodorous, its taste is styptic and alkaline. It is readily decomposed by water, which precipitates the peroxide of iron entirely, and leaves subcarbonate and nitrate of potash in solution. Dr. Paris observes, " that it is a very injudicious preparation, for it cannot be exhibited in any form without decomposition ;" to which may be added, that it nearly resembles the Mistura Ferri composita, when that has been so long, and so improperly kept, as to have the protocarbonate of iron at first precipitated rendered red, and converted into peroxide.

Composition.—It is difficult to state in what mode the constituents of this preparation are combined; it may perhaps be a double salt, composed of pernitrate of iron and carbonate of potash ; at any rate it consists essentially of a solution of peroxide of iron in carbonate of potash. It is necessary to use about one-twelfth more of the solution of subcarbonate of potash than is directed ; and when so prepared, it will be found by calculation, that each fluidrachm of the solution contains nearly 2 grains of peroxide of iron ; the quantity of peroxide of iron contained in this preparation, is therefore to that contained in an equal quantity of tinctura ferri muriatis, about as 2 to 4·2 ; but its efficacy is probably in a much smaller proportion, on account of the insolubility of the peroxide of iron, which must necessarily be precipitated from it previously to exhibition.

Medicinal uses.—Tonic, emmenagogue. Dose fʒss, to fʒj.

Ferrum Tartarizātum.

Tartarized Iron.

Take of Iron a pound,
Supertartrate of potash, powdered, a pound,
Distilled water five pints, or as much as may be necessary;

Rub the iron and the supertartrate of potash together, and expose them in an open glass vessel with a pint of water to the air for twenty days, stirring the mixture daily; distilled water being frequently added, that it may be always moist. Then boil it in four pints of distilled water for a quarter of an hour, and filter the solution. Evaporate it in a water-bath, until the tartarized iron is perfectly dried; rub it to powder, and keep it in a well closed vessel.

Process.—The excess of acid in the supertartrate of potash, acts upon and dissolves the iron, which is previously converted into protoxide by decomposing a portion of the water, the hydrogen of which is given out in the state of gas; during the exposure to the air, the protoxide of iron absorbs an additional portion of oxygen from the air of the atmosphere; so that, while hydrogen gas is first evolved by the decomposition of the water, azotic gas is afterwards set free by the decomposition of atmospheric air.

Water { Hydrogen *gas* / Oxygen

Atmospheric Air { Azotic gas / Oxygen

Oxygen + Iron + Oxygen → *Peroxide of Iron*

Peroxide of Iron + Supertartrate of Potash → *Tartarized Iron.*

Qualities.—This preparation is of a brownish colour, with a shade of green; it is inodorous, and has but little of the disagreeable taste of the iron, when properly prepared. It is readily soluble in water, and becomes moist in a damp atmosphere. It gives a dark coloured precipitate with astringent vegetables, but does not afford a blue precipitate by means of the ferrocyanate of potash; neither potash nor soda, nor their subcarbonates, decompose this solution unless heat be applied, and even then ammonia and its carbonate produce no effect upon it. Of all chalybeate preparations it is the least nauseous, and the solution will remain for a considerable time without suffering decomposition; but occasionally it deposits tartrate of lime, this being an incidental impurity in the supertartrate of potash.

Composition.—This preparation is a double salt, consisting of tartrate of potash and tartrate of iron. It consists very nearly of

Supertartrate of potash ..	80
Peroxide of iron	20
	100

Adulteration.—When the digestion has not been continued sufficiently long, the supertartrate of potash is not saturated, and the excess of acid gives a disagreeable taste to the compound. As formerly prepared it frequently contained a large portion of iron filings, which might be separated by a magnet.

Medicinal uses.—This preparation is advantageously exhibited in all cases in which chalybeates prove useful. From its slight taste it may be readily given when other preparations of iron prove nauseating. The dose is from gr. x. to ʒss. given either in solution, or in the form of bolus, combined with an aromatic; but in its perfect state it cannot be given in the form of powder, on account of its attracting moisture.

Vīnum Ferri.

Wine of Iron.

Take of Iron a drachm,
Supertartrate of potash powdered, six drachms,
Distilled water two pints, or as much as may be necessary,
Proof spirit twenty fluidounces;

Rub the iron and the supertartrate of potash together, and expose them in an open glass vessel with a fluid-ounce of water to the air for six weeks, stirring the mixture daily with a spatula ; distilled water being frequently added, that it may be always moist. Then dry it with a gentle heat, rub it to powder, and mix it with thirty fluidounces of distilled water. Filter the solution and add the spirit.

Process.—This preparation is tartrate of potash and iron, with excess of supertartrate of potash, which is probably intended to supply the place of the acid contained in the wine formerly employed, and to effect the perfect solution of tartarized iron in the weak spirit.

The quantity of iron directed to be used is very nearly such, that if it were all acted upon by the supertartrate of potash, and dissolved by the spirit, the strength of the present preparation would almost exactly equal that which I found the former to possess. But three causes prevent this: first, the whole of the iron is not acted upon by the tartar ; secondly, a part of that which is converted into tartarized iron, is rendered insoluble by drying ; and thirdly, a portion which is dissolved by the water is immediately precipitated by the spirit. I find that owing to these circumstances, a pint of the present vinum ferri contains only16 grains of peroxide, instead of 22 grains, which an equal quantity of the former preparation held in solution.

Incompatibles—The same as with tinctura ferri muriatis.

Medicinal uses.—Similar to those of the other preparations of iron ; but to give as much iron as is contained in f ʒj. of tinctura ferri muriatis, would require more than a quarter of a pint of this solution.

PREPARATIONS OF MERCURY.

Hydrargȳrum Pūrificātum.

Purified Mercury.

Pour mercury into an iron retort, and, heat being applied to it, let the purified mercury distil.

Process.—Mercury is a volatile metal, which rises in vapour when heated, and condenses readily. The intention of distilling it, is to remove any metals with which it may be amalgamated; these, not being volatile, will remain in the retort.

Hydrargȳrum cum Crēta.

Mercury with Chalk.

Take of Purified mercury, *by weight*, three ounces,
Prepared chalk five ounces;
Rub them together until globules are no longer visible.

Process.—I have only slightly examined this preparation, and I am uncertain whether it consists merely of chalk and mercury in a state of minute division, or whether it is a suboxide of mercury formed by absorbing oxygen during the trituration of the mercury.

The mercury is totally insoluble in acetic acid, and therefore is not the black or protoxide; but when the chalk has been separated by acetic acid, the mercury does not form one fluid mass, like metallic mercury, but exists in the state of separate and minute globules.

Eight grains of this preparation contain three grains of mercury.

Incompatibles.—Acids and acidulous salts act upon this preparation, and dissolve the chalk with the effervesence of carbonic acid gas.

Medicinal uses.—It is one of the mildest of all mercurial preparations. Dose, as an alterative, gr. x. to gr. xxx.

Hydrargÿri Oxÿdum Rūbrum.

Red Oxide of Mercury.

Take of Purified mercury, *by weight*, a pound;

Put the mercury into a tall glass vessel, with a narrow mouth and broad bottom. Apply a heat of 600° to this vessel, unclosed, until the mercury is converted into red scales; then rub them to a very fine powder.

Process.—During the action of the heat, the mercury combines with the oxygen of the air, and is by this union converted into red oxide of mercury, termed (chemically) peroxide, as being that which contains most oxygen.

Qualities.—This preparation consists of minute crystalline scales of a deep red colour; it is inodorous, acrid to the taste, and very slightly soluble in water. When heated, the colour becomes much darker, but it is restored on cooling. At a red heat it is decomposed, the mercury returns to the metallic state, and oxygen gas is evolved: when placed upon a red hot iron it is totally volatilized. The muriatic, nitric, and some other acids, dissolve it readily; potash and soda decompose the solutions, and precipitate orange-coloured peroxide of mercury: Ammonia forms a white precipitate, which is composed of the acid, the peroxide, and ammonia.

Composition.—Peroxide of mercury is composed of

Mercury....	92·6	or 1 atom metal........	= 200
Oxygen.....	7·4	2 atoms oxygen	= 16
	100·00	Weight of the atom	= 216

Adulteration.—This preparation is directed by the College to be reduced to powder; but as in this form it would be very easy to adulterate it with the hydrargyrum nitrico-oxydum, it is always kept in the state of the small scales which it assumes during its formation. If perfectly pure, it is totally volatilized by a red heat.

Incompatibles.—Acids and acidulous salts, and sulphuretted hydrogen.

Medicinal uses.—It is a very active medicine; but as it frequently occasions vomiting, purging, and affects the stomach and bowels violently; it is now but little employed. Dose, gr. j. combined with gr. ss. of opium.

Hydrargy̆ri Nitrĭco-oxy̆dum.

Nitric-oxide of Mercury.

Take of Purified mercury, *by weight*, three pounds,
Nitric acid, *by weight*, a pound and a half,
Distilled water two pints;

Mix in a glass vessel, and boil until the mercury is dissolved, and the water being evaporated, a white mass remains. Rub this to powder, and put it into a very shallow vessel; then apply a gentle heat, and increase it gradually, until red vapour ceases to arise.

Process.—The mercury decomposes a part of the nitric acid, and, combining with a portion of its oxygen, is converted first into oxide and then into nitrate of mercury; this nitrate of mercury when exposed to a strong heat is decomposed, and so also is the acid which it contained. The red vapour abovementioned results from the union of the nitric oxide evolved with the oxygen of the atmosphere, and the consequent formation of nitrous acid vapour. (See Argenti Nitras.)

Qualities.—This preparation is of a bright red colour, much lighter than that of the peroxide of mercury obtained by heat; but its chemical properties are precisely similar.

Composition.—This preparation, like the last, is peroxide of mercury: it sometimes contains a little undecomposed nitrate, and has on this account been called, but improperly, Subnitrate of Mercury. Excepting a small and accidental portion of undecomposed nitrate, it consists of

Mercury...	92·6	or 1 atom of metal ... =	200
Oxygen ...	7·4	2 atoms of oxygen .. =	16
	100·0	Weight of its atom =	216

Incompatibles.—Vide Hydrargyri Oxydum Rubrum.

Adulteration.—It would be difficult to sophisticate this preparation considerably, because the admixture may be detected by mere inspection. It should be perfectly volatilized by being placed upon a red hot iron.

Officinal preparation.—Unguentum Hydrargyri Nitrico-oxydum.

Medicinal uses.—It is employed only externally as an escharotic.

Hydrargўri Oxўmurias.

Oxymuriate of Mercury.

Take of Purified mercury, *by weight*, two pounds,
Sulphuric acid, *by weight*, thirty ounces,
Dried muriate of soda four pounds;

Boil the mercury with the sulphuric acid in a glass vessel, until the sulphate of mercury becomes dry; rub this, when it is cold, with the muriate of soda, in an earthen mortar; then sublime it in a glass cucurbit, the heat being gradually raised.

Process.—It has already been mentioned, that the College do not appear to have adopted the modern views of the nature of muriatic acid. In explaining this process, I shall therefore state both theories; and first, that which supposes muriatic acid to be an undecomposed body. When sulphuric acid and mercury are boiled together a portion of the acid is decomposed, and separated into sulphurous acid and oxygen: the former

being dissipated in the gaseous state, the latter combines with the mercury and converts it into peroxide, and this uniting with the undecomposed sulphuric acid, a supersulphate of peroxide of mercury is formed, termed correctly, bipersulphate of mercury. Common salt, according to the hypothesis now explaining, is composed of muriatic acid and soda; and when it is mixed with sulphate of mercury, double decomposition takes place. The sulphuric acid of the sulphate of mercury combines with the soda of the muriate of soda, and sulphate of soda is formed; while the muriatic acid separated from the soda unites with the peroxide of mercury, and forms muriate or oxymuriate of mercury; and this, being a volatile compound, it rises in vapour, and is condensed in the upper part of the vessel.

Permuriate or Oxymuriate of Mercury.

Muriatic Acid Peroxide of Mercury

Muriate of Soda. Persulphate of Mercury

Soda Sulphuric Acid

Sulphate of Soda.

If we regard common salt as a compound of chlorine and sodium, the changes which take place when it is heated with persulphate, or rather bipersulphate, of mercury, are as follows: Two atoms of chloride of sodium = 120, consisting of 2 atoms of chlorine = 72 + 2 atoms of sodium = 48, are decomposed by 1 atom of bipersulphate of mercury = 296, composed of 1 atom of mercury = 200 + 2 atoms of oxygen = 16 + 2 atoms of sulphuric acid = 80: the products of this decomposition are 2 atoms of sulphate of soda = 144, formed by the transfer of the 16 of oxygen and 80 of sulphuric acid from the mercury to the 48 of sodium; and 1 atom of perchloride of mercury = 272 (oxymuriate of mercury), derived from the combination of 2 atoms of chlorine = 72, with 1 atom of mercury = 200.

272 = 1 *atom Perchloride of Mercury*

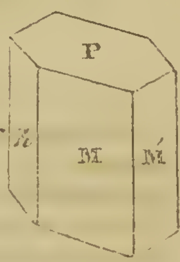
72 = 2 atoms Chlorine. 1 atom Mercury = 200

120 = 2 atoms Chloride of Sodium — 296 = 1 atom Bipersulphate of Mercury

48 = 2 atoms Sodium. / 2 atoms Oxygen = 16
16 = 2 *atoms Oxygen* / 2 atoms Sulphuric acid = 80
64 = 2 *atoms Soda*

144 = 2 *atoms Sulphate of Soda*

Qualities.—Perchloride of mercury, sometimes called Bichloride of mercury, and in the Pharmacopœia, Oxymuriate, is usually termed corrosive sublimate. It is a white semi-transparent crystalline mass, and perfect crystals are occasionally procurable. The cleavages in the crystals of this substance are parallel to the lateral and to the terminal planes of *a right rhombic prism* of 93° 44′, which therefore may be regarded as the primary form.



P on M, or M′..........	90°	00′
M on M′	93	44
M on *h*................	133	8

Corrosive sublimate is inodorous; it has an acrid and nauseous taste, which remains long in the mouth. It is a violent poison. Its specific gravity is 5·200; water, at 60° Fahr. dissolves rather more than 1-20th, and boiling water one-third of its weight. Although light has no action upon this salt in its solid state, yet it partially decomposes the aqueous solution, and calomel or protochloride of mercury is precipitated. It is much more soluble in alkohol, ether, muriatic acid, and solution of muriate of ammonia, than in water. If we consider, according to modern views, corrosive sublimate as perchloride of mercury, and that during solution in water it becomes permuriate of mercury, we must suppose that it decomposes water during its solution; the oxygen of which uniting with the mercury converts it into peroxide, and the hydrogen combining with

the chlorine forms muriatic acid, and they unite into permuriate of mercury, which exists, as such, only in solution.

From the solution of permuriate of mercury thus formed, the alkalies potash and soda, and lime-water, throw down a yellowish-red precipitate of peroxide of mercury. Ammonia, however, gives a white one, which is a triple compound of the acid, metallic oxide, and alkali. (Vide Hydrargyrum Præcipitatum Album.)

Composition.—It follows from the different opinions entertained as to the nature of corrosive sublimate, that the views of its composition will also be dissimilar; according to the old theory, which considers it as consisting of muriatic acid and peroxide of mercury, it contains of

Muriatic acid......	20·58	or 2 atoms acid	= 56
Peroxide of mercury	79·42	1 atom peroxide ...	= 216
	100·00	Weight of its atom	= 272

Regarded, according to modern experiments, as a perchloride of mercury, it is composed of

Chlorine..	26·48	or 2 atoms of chlorine 36 × 2	= 72
Mercury..	73·52	1 atom of metal	= 200
	100·00	Weight of its atom	= 272

Adulteration.—I am not aware that this compound is subject to be adulterated. If pure it is totally volatilized by heat, and consequently any substance remaining after its exposure to heat, must be owing to the admixture of some foreign matter. Calomel, which it may accidentally contain, will be discovered by its insolubility.

Incompatibles.—Ammonia, potash, soda, and their carbonates; lime-water, tartarized antimony, nitrate of silver, the acetates of lead, sulphuret of potash, and all hydrosulphurets; soap, many metals, infusion of bitter and astringent vegetables, and some vegetable bodies which possess neither of those qualities.

Officinal preparations.—Liquor Hydrargyri Oxymuriatis, Hydrargyri Submurias, Hydrargyrum præcipitatum album.

Medicinal uses.—It is frequently serviceable in secondary syphilis, and in some cutaneous diseases, particularly combined with an antimonial, in lepra. Dose, from one-eighth to one-fourth of a grain, made into a pill with crumb of bread.

Lĭquor Hydrargȳri Oxȳmuriātis.

Solution of Oxymuriate of Mercury.

Take of Oxymuriate of mercury eight grains,
Distilled water fifteen fluidounces,
Rectified spirit a fluidounce;
Dissolve the oxymuriate of mercury in the distilled water, and add the spirit to it.

Qualities.—This solution of permuriate of mercury should be kept from the light, as it suffers decomposition by its action. A fluidounce contains half a grain of corrosive sublimate. Dose half a fluidrachm to two fluidrachms in infusion of linseed.

Hydrargȳri Submurĭas.

Submuriate of Mercury.

Take of Purified mercury, *by weight*, four pounds,
Sulphuric acid, *by weight*, thirty ounces,
Muriate of soda a pound and a half,
Muriate of ammonia eight ounces;
Boil two pounds of the mercury with the sulphuric acid in a glass vessel, until the sulphate of mercury is dry; when this is cold triturate it with two pounds of mercury in an earthen mortar, that they may be thoroughly mixed. Then add the muriate of soda, and rub them together, until globules are no longer visible; afterwards sublime. Reduce the sublimed matter to a very fine powder, pass it through a sieve, and mix it carefully with the muriate of ammonia previously dissolved in a gallon of boiling distilled water. Set it by that the powder may subside. Pour off the solution, and wash the powder frequently with boiling distilled water, until solution of ammonia dropped into it throws down nothing. Lastly, let it be reduced to a very

fine powder, in the same manner as that which we have directed in the preparation of chalk.

Process.—According to the hypothesis which supposes corrosive sublimate to be a bi-muriate of peroxide of mercury, calomel is a muriate of the protoxide, formed by adding mercury to corrosive sublimate in such proportion as to combine with exactly half of its acid and oxygen. Thus, supposing we have 272 parts of corrosive sublimate, consisting of 56 muriatic acid and 216 of peroxide of mercury, when 200 parts of mercury are rubbed and sublimed with them, 28 of the acid and 8 of the oxygen unite with the 200 of fresh mercury, and there are formed 472 parts of calomel, consisting of 400 of mercury, 56 muriatic acid and 16 oxygen.

But considering corrosive sublimate, and more correctly, as a perchloride or a bichloride of mercury, the changes that take place during its conversion into calomel, are merely, that one-half of the chlorine unites with the fresh portion of mercury added, so that the perchloride or bichloride is converted into chloride or protochloride ; the annexed diagrams will elucidate both statements of the changes which occur.

272 Oxymuriate or Permuriate of Mercury:
- 56 Muriatic Acid
- 16 Oxygen
- 200 Mercury

200 Mercury

472 *Hydrargyri Submurias.*

272 Perchloride of Mercury:
- 72 Chlorine = 2 atoms
- 200 Mercury = 1 atom

200 Mercury = 1 atom

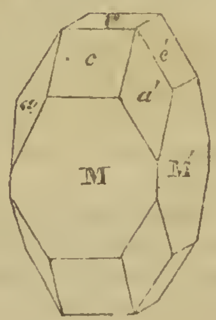
472 *Protochloride of Mercury, Calomel, or Hydrargyri Submurias.*

In the last and former Pharmacopœias, the corrosive sublimate was first separately formed and the mercury triturated with it, but in the present edition the College have very advantageously omitted to continue the operation so far, and have directed the mercury to be mixed with the persulphate and common salt, previously to the formation of corrosive sublimate. In the present process we may therefore consider the corrosive sublimate as being converted into calomel at the moment of its formation. The muriate of ammonia is probably directed to be used for the purpose of dissolving any corrosive sublimate which may have been formed with the calomel.

In preparing corrosive sublimate, it will be observed, that two pounds of mercury are used with thirty ounces of sulphuric acid and four pounds of common salt, whereas in preparing calomel the proportions are four pounds of mercury to thirty ounces of the acid, and a pound and a half of salt. It is evident, therefore, that supposing the quantities last directed to be proper, the proportion of acid employed in the former preparation is too great by one-half, and the common salt is still more in excess: it appears to me that the smaller quantities are quite sufficient.

Qualities.—Submuriate of mercury is commonly called calomel, and by chemists is termed chloride or protochloride of mercury. It is a white semitransparent crystalline mass, and occasionally perfect crystals are obtained.

Although there does not appear to be any distinct cleavage in the crystals of this substance, there are indications of cleavages parallel to all the planes of *a square prism*, which may be regarded as the primary form.



P on M, or M′	90°	00′
P on *a*	112	5
P on *c*	119	50
M on M′	90	00
M on *c*	150	10
a on edge G	157	55

Calomel is inodorous, insipid, and insoluble in water. Its specific gravity is 7·175; by long exposure to light it is rendered of a dark colour, owing to partial decomposition.

It is decomposed by the alkalies potash, soda, and ammonia, but their carbonates act imperfectly upon it. Nitric acid converts into corrosive sublimate. Sulphuretted hydrogen decomposes it.

Composition.—Regarded as a muriate, calomel consists of

Muriatic acid	11·86 or	1 atom acid......	= 28
Protoxide of mercury	88·14	1 atom protoxide	= 208
	100·00	Weight of its atom	= 236

Even adopting the opinion that this compound contains muriatic acid, it must be a *muriate* and not a *submuriate*, as Dr. Paris has very justly observed.

Considered as a chloride or protochloride, it is composed of

Chlorine	15·25 or	1 atom chlorine	= 36
Mercury	84·75	1 atom mercury	= 200
	100.00	Weight of its atom	= 236

Impurities.—This preparation has been sometimes suspected to contain corrosive sublimate, a circumstance which I do not think likely to have occurred after it has been reduced to powder, either by elutriation or levigation. To detect corrosive sublimate, let the calomel be boiled in distilled water, filter it, and add liquor potassæ: if any corrosive sublimate be present, an orange-coloured precipitate of peroxide of mercury will be obtained, liquor ammoniæ will give a white one, which is a triple compound of peroxide of mercury, ammonia, and muriatic acid. The solubility of the corrosive sublimate will be increased by the addition of a little muriate of ammonia, but then liquor potassæ will give a white precipitate instead of an orange one, and similar to the hydrargyrum præcipitatum album.

Some years since, Mr. Jewell, of the house of Howard, Jewell and Gibson, of Stratford, invented a process for procuring calomel, by one operation, in a state of such minute division as to render any further operation unnecessary. His plan consists in passing the vapour of the calomel, as it rises, into water, by which it is immediately condensed, and into a much finer powder than that obtained by levigation or elutriation. A given weight of calomel thus prepared, occupies much less space than an equal quantity reduced to powder by the usual processes; and Dr. Paris observes, that in consequence probably of this minute division, it appears to affect the system more readily than that made according to the Pharmacopœias; it may also be remarked, that this method of preparation must completely re-

move all suspicion of the presence of corrosive sublimate in the product.

Incompatibles.—Calomel is immediately decomposed by lime-water, muriate of lime being formed and dissolved, while black or protoxide of mercury is precipitated. The solutions of ammonia, of potash, and of soda, produce a similar effect, and their respective muriates are formed. The alkaline carbonates decompose calomel slowly and incompletely until heated, but then protoxide of mercury is immediately formed. It is stated to be decomposed also by iron, lead and copper, and it is incompatible with hydrosulphurets.

Officinal preparations.—Hydrargyri Oxydum cinereum. Pilulæ Hydrargyri submuriatis.

Medicinal uses.—It is an extremely efficient purgative, and it is alterative, antisyphilitic, and a valuable remedy in obstructions and hepatic affections. It is particularly useful in the diseases of children, and they frequently bear larger doses of it than adults. Dose as an alterative gr. ss. to gr. j. night and morning; as a purgative from gr. ij. to gr. x. or in some cases considerably more. Its insolubility and great specific gravity prevent its being eligibly exhibited in any other form than that of powder or of pill.

Hydrargўri Oxўdum Cinerĕum.

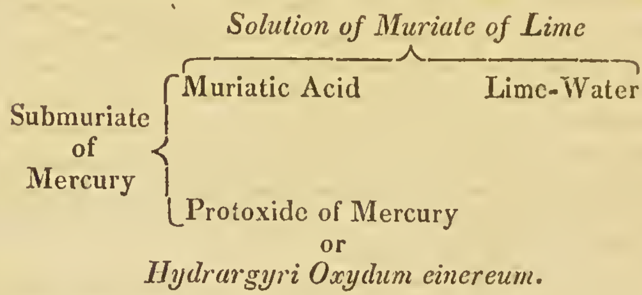
Grey Oxide of Mercury.

Take of Submuriate of Mercury an ounce,
Lime-water a gallon;

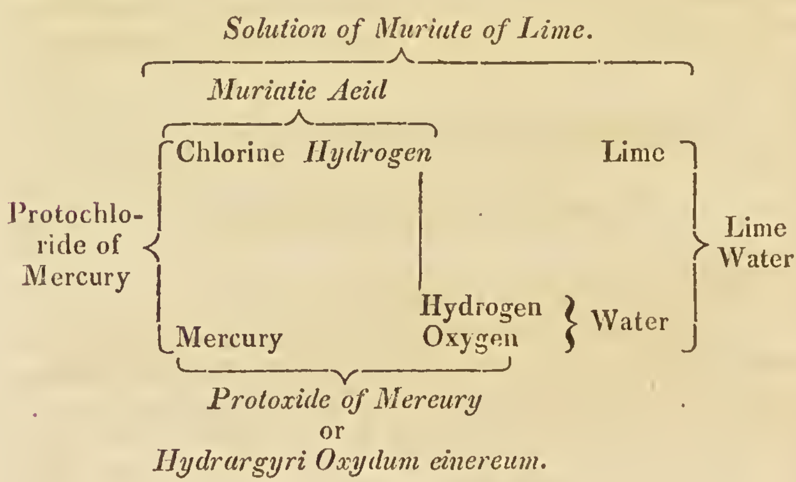
Boil the submuriate of mercury in the lime-water, constantly stirring them until the grey oxide of mercury subsides. Wash this with distilled water; then dry it.

Process.—It has been already remarked that calomel is decomposed by lime-water, and that muriate of lime and protoxide of mercury are the results of this decomposition. If calomel be considered to be submuriate of mercury, as it is denominated by the College, the explanation of this process is simply, that the muriatic acid and lime having greater affinity

for each other than the muriatic acid and protoxide of mercury, the two former combine, and the latter is separated.



According to the modern opinion that calomel is protochloride of mercury, the operation is more complicated. Calomel consists of chlorine and mercury, and when acted upon by the lime-water, a portion of the fluid is decomposed, and its oxygen combining with the mercury renders it protoxide, while its hydrogen uniting with the chlorine, forms muriatic acid, which converts the lime into muriate, and the protoxide of mercury is precipitated.



Qualities.—This preparation ought to be merely black, or protoxide of mercury, consisting of

Mercury..	96·16	or 1 atom metal	= 200
Oxygen ..	3·84	1 atom oxygen	= 8
	100·00	Weight of its atom	= 208

As usually prepared it is a mixture of different proportions of calomel and protoxide, or calomel and peroxide, and sometimes of calomel and both oxides; and its colour is as various as its composition. It appears to suffer change by the action of the light, by exposure to which black oxide of mercury acquires an olive tint, owing to the formation of some peroxide of mercury; this may be derived either from the addition of oxygen to the protoxide, or the reduction of a portion of it to the metallic state, and the transfer of its oxygen to some of the protoxide.

Adulteration.—If pure it ought to dissolve entirely in acetic acid, and to be totally insoluble in muriatic, but if it contain peroxide, the latter acid will dissolve it, and the protoxide will be converted into calomel; if the solution give a white precipitate on the addition of liquor ammoniæ, or a yellow one with liquor potassæ, then the preparation contained peroxide of mercury. If it contain undecomposed calomel, then by boiling with a solution of pure potash, muriate of potash will be obtained, which, when the solution is saturated with nitric acid, will afford a white precipitate of chloride of silver, on the addition of the nitrate of silver. It is rarely used. Dose from gr. j. to gr. iij. in the form of a pill, twice a day; as however its strength must greatly vary, it is better to employ more certain preparations.

Hydrargy̆rum Præcipitātum Album.

White Precipitated Mercury.

Take of Oxymuriate of mercury half a pound,
Muriate of ammonia four ounces,
Solution of subcarbonate of potash half a pint,
Distilled water four pints;

First dissolve the muriate of ammonia, and then the oxymuriate of mercury in the distilled water, and to these add the solution of subcarbonate of potash. Wash the precipitated powder until it becomes tasteless; then dry it.

Process.—In this operation the effect is probably that the potash decomposes the muriate of ammonia, the ammonia of which combines with the peroxide of mercury and a portion

of the muriatic acid, and this triple compound being insoluble in water, is precipitated in the state of a white powder. I do not know that it has been determined whether the carbonic acid of the subcarbonate of potash is evolved, or whether it enters into the composition of the precipitate. At any rate it is not essential to its formation, for liquor ammoniæ, when poured into solution of permuriate of mercury, produces a similar effect.

Qualities.—This is a light and perfectly white powder. It is inodorous, insipid, and insoluble in water. If heated with potash it is decomposed, and its ammonia is expelled, owing to the combination of the muriatic acid with the potash : if too much potash be used in its preparation, the same effect will be produced. It is decomposed also by the sulphuric and nitric acids.

Composition.—It is stated to be composed of

Peroxide of mercury ...	81
Muriatic acid	16
Ammonia	3
	100

Although I entertain some doubt as to these being the correct proportions of the constituents of this salt, there is none of its being essentially composed of them.

Adulteration.—If this preparation should be mixed with white lead or chalk, they will remain after it has been exposed to a strong red heat in a crucible : to determine which of the two substances it has been adulterated with, dissolve the residuum in nitric acid and add liquor ammoniæ to the solution. If it be lead, a white precipitate will be immediately formed, which sulphuretted hydrogen will blacken ; and if it be lime, no precipitate will occur, until carbonate of ammonia has also been mixed with it.

Officinal preparations.—Unguentum Hydrargyri Præcipitati Albi.

Medicinal uses.—It is employed only externally, in cutaneous affections.

Hydrargy̆ri Sulphurētum Nigrum.

Black Sulphuret of Mercury.

Take of Purified mercury, *by weight*, a pound,
Sublimed sulphur a pound ;
Rub them together until globules are no longer visible.

Process.—The mercury and sulphur combine by mere trituration, but the proportion of the latter is much greater than is required to form a definite compound.

Qualities.—This preparation, well known by the name of Æthiop's mineral, is a very black insipid and inodorous powder.

Composition.—Sulphuret of mercury is composed of

Mercury........	92·6	or 1 atom mercury..	= 200
Sulphur	7·4	1 atom sulphur ..	= 16
	100·0	Weight of its atom	= 216

The officinal preparation must therefore consist of

Sulphuret of mercury	58
Sulphur	42
	100

Adulteration.—It is stated to be sometimes mixed with ivory black ; if this be the case, heat it in an earthen crucible, and the sulphuret of mercury will be volatilized, and after a red heat has been for some time applied, a white powder will remain, which is the phosphate of lime of the ivory black, deprived of its charcoal. If it be adulterated with sulphuret of antimony, boil a little of the powder in undiluted muriatic acid, pour the clear solution into water, and submuriate of antimony will be precipitated.

Medicinal uses.—It is an inefficient preparation. Dose, from gr. v. to gr. xxx. as an alterative.

Hydrargyri Sulphuretum Rubrum.

Red Sulphuret of Mercury.

Take of Purified mercury, *by weight*, forty ounces,
Sublimed sulphur eight ounces;

Mix the mercury with the melted sulphur over the fire, and as soon as the mass begins to swell, remove the vessel from the fire, and cover it strongly to prevent inflammation; then rub the mass to powder, and sublime it.

Process.—By the action of heat a product is obtained, which, by the subsequent process of sublimation, yields the persulphuret or bisulphuret of mercury.

Qualities.—When in mass this substance is of a dark colour, which, when reduced to a fine powder, is of a brilliant red, and it is often called cinnabar or vermilion. It is inodorous and insipid; unalterable by exposure to the air or moisture. When heated to redness in an open vessel, the sulphur is converted into sulphurous acid, and the mercury escapes in vapour. It is decomposed when distilled with lime, potash, or soda, and also by several of the metals.

Composition.—It consists of mercury combined with exactly twice as much sulphur as in the black or protosulphuret; or of

Mercury....	86·2	or 1 atom metal..........	= 200
Sulphur	13·8	2 atoms sulphur 16 × 2	= 32
	100·0	Weight of its atom	= 232

Adulteration.—If the presence of red oxide of lead be suspected, heat the sulphuret in an earthen crucible; the sulphuret of mercury will be volatilized, and any residuum must be owing to impurity: add dilute nitric acid to it, and then mix separate portions of the clear solution with dilute sulphuric acid and solution of sulphuretted hydrogen. If the former occasion a white precipitate, and the latter a black one, red lead must have been mixed with the sulphuret.

Medicinal uses.—It is employed for the purpose of mercurial fumigation, by heating ℨss. of it on red hot iron.

PREPARATIONS OF LEAD.

Plumbi Acētas.

Acetate of Lead.

Take of Subcarbonate of lead a pound,
Strong acetic acid a pint,
Boiling distilled water a pint and a half;

Mix the acid with the water; add to them the subcarbonate of lead gradually, and boil until the acid is saturated; then filter through paper, and, the solution being evaporated until a pellicle appears, set it by that crystals may form. Having poured off the solution, dry them upon bibulous paper.

Process.—Subcarbonate of lead, usually called white lead, and correctly, carbonate, is composed of

Carbonic acid....	16·4	or 1 atom acid ..... =	22
Oxide of lead....	83·6	1 atom oxide..... =	112
	100·0	Weight of its atom =	134

When acetic acid is added to it the carbonic acid is expelled in the state of gas, and with effervescence, on account of the greater affinity of the acetic acid for the oxide of lead, and a solution of acetate of lead is formed.

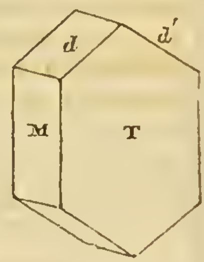
Carbonate of Lead: Carbonic Acid *Gas*; Oxide of Lead

Oxide of Lead + Acetic Acid = *Acetate of Lead.*

It will appear by calculation that the carbonate of lead here directed to be employed is not sufficient to saturate the acetic acid; but the deficiency is not great.

This salt, as prepared for the purposes of the arts, is extremely pure, and much cheaper than it can be made by the chemist; it might therefore have been introduced into the Materia Medica as well as sulphate of soda and some other preparations.

Qualities.—Acetate of lead is crystalline, colourless, nearly inodorous, of a sweetish astringent taste, and is poisonous; it suffers but little change by exposure to the air. The crystals are usually very small; but, if they are suffered to form slowly, they may be obtained of considerable size. Their primary form appears to be *a right oblique-angled prism*; the only modification which it has been as yet observed to present, is exhibited in the annexed figure:



d on d′	128° 0′
d on M	116 0
d on T	98 30
M on T	109 32

Water at 60° dissolves about one-fourth of its weight of this salt, and it is not much more soluble in boiling water. When the solution is exposed to the air the acetate is partly decomposed by the absorption of carbonic acid, and carbonate of lead is precipitated: water which contains carbonic acid also decomposes acetate of lead to a certain extent; and if a current of carbonic acid gas be passed through the solution, one-half of the acetate is converted into carbonate and precipitated, and binacetate of lead remains in solution.

Composition.—Acetate of lead is composed of

Acetic acid..	26·45	or 1 atom acid	= 50
Oxide of lead	59·25	1 atom oxide.......	= 112
Water......	14·30	3 atoms water 9 × 3	= 27
	100·00	Weight of its atom	= 189

Adulteration.—This salt ought to dissolve entirely in distilled water free from carbonic acid; any thing that remains insoluble is to be regarded as impurity.

Incompatibles.—It is decomposed by all those acids and their compounds which form, with oxide of lead, salts nearly insoluble in water, as the sulphuric, muriatic, carbonic, citric, and tartaric. It is decomposed by lime-water, by the alkalies

ammonia, potash, and soda; the two latter, if added in excess, re-dissolve the precipitate at first formed. Hard water usually contains three ingredients which decompose it, viz. carbonate of lime, sulphate of lime, and muriate of soda; and hence, when dissolved in such water, the solution is always turbid. It is decomposed by solution of sulphuretted hydrogen, which gives a black sulphuret: liquor ammoniæ acetatis also decomposes it, on account of the carbonic acid diffused through it.

Officinal preparations.—Ceratum Plumbi Acetatis.

Medicinal uses.—It is principally employed, externally, in solution in water, as a collyrium in opthalmia, an astringent in gonorrhœa, and as a wash in external inflammation. Internally it is given cautiously, and combined with opium, in protracted diarrhœa, and in pulmonary and intestinal hemorrhage. Dose, gr. ss. to gr. j.

Lĭquor Plumbi Subacetātis.

Solution of Subacetate of Lead.

Take of the Semi-vitreous oxide of lead two pounds,
Diluted acetic acid a gallon;

Mix, and boil down to six pints, constantly stirring, then set the solution by, that the dregs may subside, and filter.

Semi-vitreous oxide of lead is the substance usually called litharge; it is the oxide or protoxide of lead, composed of 1 atom lead = 104 + 1 atom oxygen = 8.

Qualities.—This solution is either colourless or has a slight greenish yellow tint; it has an astringent sweetish taste. Its specific gravity depends upon the strength of the distilled vinegar employed; when the sp. gr. of the latter is 1·007 that of the solution of subacetate of lead is 1·220, but if the vinegar is so strong as to have a specific gravity of 1·009, then that of the subacetate reaches 1·309. It is decomposed by spring-water for the same reasons as the acetate of lead, and the quantity of oxide of lead thrown down is much larger; distilled water which contains the smallest portion of carbonic acid likewise decomposes it.

Composition.—This preparation is commonly represented to be a compound of 1 atom of acetic acid + 3 atoms of oxide of lead, or a subtritacetate of lead; it is however evident from the analysis of Dr. Bostock, that it is a sub-binacetate, and consists of

Acetic acid . .	18·25	or 1 atom acid	= 50
Oxide of lead	81·75	2 atoms oxide 112 × 2	= 224
	100·00	Weight of its atom	= 274

It is evident from what I have stated respecting the variable specific gravity of this solution, that it must consist of this sub-salt, dissolved in different quantities of water; its strength is therefore uncertain.

Adulteration.—This preparation is frequently made with the residuum of the distillation of vinegar; it has then a dark colour, and ought to be rejected.

Incompatibles.—Similar to those which are such with the acetate of lead.

Officinal preparation.—Liquor Plumbi Subacetatis dilutus.

Medicinal uses.—External in superficial and phlegmonic inflammations of the skin.

Lĭquor Plumbi Subacetātis dilūtus.

Diluted Solution of Subacetate of Lead.

Take of Solution of subacetate of lead a fluidrachm,
Distilled water a pint,
Proof spirit a fluidrachm;
Mix them.

It is justly observed by Dr. Paris, that the quantity of spirit here directed to be used, is much too small to answer the intention of increasing the refrigerating effect of the acetate of lead: the quantity of rectified spirit amounts to scarcely 1-220th part of the whole fluid.

Medicinal uses.—It is employed as an application in superficial inflammation.

PREPARATIONS OF ZINC.

Calamīna Præparāta.

Prepared Calamine.

Calcine the calamine; then powder it. Lastly, let it be reduced to a very fine powder by the same method, as that by which we have directed chalk to be prepared.

Medicinal uses.—It is sometimes externally applied in excoriations, and is an ore of zinc, consisting of the oxide combined with carbonic acid, and mixed with earthy matter.

Zinci Sulphas.

Sulphate of Zinc.

Take of Zinc in small pieces, four ounces,
Sulphuric acid, *by weight*, six ounces,
Distilled water four pints;

Mix them in a glass vessel, and the effervescence being finished, filter the solution through paper; then boil it down until a pellicle appears, and set it by that crystals may form.

Process.—The phœnomena and effects which are produced during the solution of zinc in diluted sulphuric acid, are precisely analagous to those which occur during the solution of iron.

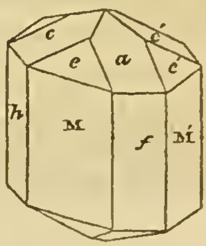
The concentrated acid does not act upon the zinc, but when water is added to them, it is decomposed; the oxygen combines with the zinc to form oxide, which is dissolved by the acid, and the hydrogen is evolved in the state of gas.

Water { Hydrogen *Gas* / Oxygen. Zinc Sulphuric Acid

Oxygen + Zinc = *Oxide of Zinc*

Oxide of Zinc + Sulphuric Acid = *Sulphate of Zinc.*

Qualities.—The solution of sulphate of zinc is colourless, and by evaporation it readily yields crystals, which are also devoid of colour; the primary form of this salt is a *right rhombic prism.* It may be cleaved parallel to the plane *h* of the annexed figure; no distinct cleavages have been observed in any other direction.



M on M′	91°	7′
M on *f*	135	33
M on *h*	134	27
M on *e*	128	58
a on *f*	120	0
h on *c*	119	23

The crystals of this salt are colourless, usually very small, and not readily by appearance distinguishable from those of sulphate of magnesia: sulphate of zinc has a disagreeable metallic taste; it is not altered by exposure to the air, but if moderately heated loses its water of crystallization, and when it is subjected to a high temperature, is entirely decomposed, the acid being expelled, and the oxide only remaining; it is soluble in two and a half times its weight of water at 60°, and much more so in boiling water. The alkalies, ammonia, potash and soda, decompose the solution, and precipitate oxide of zinc, which is perfectly white; but if they are used in excess, then the oxide is redissolved; the alkaline carbonates throw down white carbonate of zinc; water impregnated with sulphuretted hydrogen decomposes the solution, and forms a yellow precipitate, which is probably a hydrosulphuret.

Composition.—Sulphate of zinc is composed of

Sulphuric acid	29·4 or	1 atom acid	= 40
Oxide of zinc	30 9	1 atom oxide	= 42
Water	39·7	6 atoms water	= 54
	100·0	Weight of its atom	= 136

Adulteration.—The white vitriol of commerce, which is an impure sulphate of zinc in irregular masses, is sometimes substituted for the pure crystalline salt; when its use is unavoidable, it should be remembered that it contains but little water, and is consequently more powerful than the sulphate in crystals. It frequently also contains the oxides of copper and iron, both of which may be detected by pouring excess of liquor ammoniæ into a solution of the salt. The oxide of zinc will be redissolved; and that of copper also, the latter giving the solution a blue colour; the oxide of iron, on the other hand, will be precipitated in the state of oxide.

Incompatibles.—Alkalies and their carbonates, lime-water, hydrosulphurets, and astringent vegetable infusions.

Officinal preparations.—Liquor Aluminis compositus. Zinci Oxydum.

Medicinal uses.—Internally as a tonic and astringent. Dose gr. j. to gr. ij. It operates quickly as an emetic, in doses of gr. x. to gr. xxx. Externally it is employed as an astringent, as a substitute for the preparations of lead, in the proportion of gr. x. to eight fluidounces of water.

Zinci Oxydum.

Oxide of Zinc.

Take of Sulphate of zinc a pound,
Solution of ammonia a pint, or as much as may be sufficient,
Distilled water a pint;

Dissolve the sulphate of zinc in the distilled water, and add to it as much solution of ammonia as may be requisite to precipitate the oxide of zinc entirely. Having poured off the solution, wash the powder frequently with distilled water, and dry it upon a sand-bath.

Process.—In the former editions of the Pharmacopœia, oxide of zinc was prepared by burning the metal in the air. The product was frequently mixed with small portions of metallic zinc, which rendered it unfit for use in ointments; by the present me-

thod this inconvenience is avoided. I have not formed the oxide in this mode, but I formerly recommended that an oxide, or rather carbonate of zinc, should be prepared by adding carbonate of potash to the sulphate of zinc; the product would probably be less powerful, but the use of carbonate of potash is much more economical than that of ammonia, and it is unattended with the inconvenience of redissolving the precipitate, if it be added in excess, an effect which is readily produced by ammonia. The quantity of water directed for the solution of the sulphate of zinc is too small for that purpose by one-half, unless it be boiling, which would preclude the possibility of using ammonia as a precipitant. The quantity of water should, I think, be at least equal to five times that of the sulphate.

Qualities.—Oxide of zinc, as usually prepared, is a colourless, inodorous, tasteless substance. It is insoluble in water, but dissolved by almost every acid, and very readily by the solutions of potash, soda and ammonia, but not by those of their carbonates.

Composition.—It consists of

Zinc	81	or 1 atom of metal....	= 34
Oxygen..	19	1 atom of oxygen ..	= 8
	100	Weight of its atom	= 42

Adulteration.—If it contain white lead or chalk, dilute sulphuric acid will not dissolve them, but convert them into insoluble sulphates with effervescence.

Incompatibles.—This oxide is of course incompatible with the alkalies, acids and acidulous salts.

Officinal preparation.—Unguentum Zinci.

Medicinal use.—Tonic. Dose, gr. j. to gr. vj. twice a day in the form of pill.

PREPARATIONS OF SULPHUR.

Olĕum Sulphurātum.

Sulphurated Oil.

Take of Washed sulphur two ounces,
Olive oil a pint;

Heat the oil in a very large iron vessel, and add the sulphur, by degrees, to it, constantly stirring them with a spatula until they have united.

Qualities.—Sulphur is soluble in oils, and more especially in linseed oil. This preparation is a viscid fluid, of a reddish-brown colour. It is extremely fœtid and nauseous, and was formerly called Balsam of Sulphur.

Medicinal uses.—It was once considered to be balsamic, and exhibited as such in colds and coughs, in doses of ♏v. to ♏xxx. It is now rarely used, and only externally as a detergent.

Sulphur is a well-known elementary or undecomposed body, which sometimes occurs in nature nearly pure, but more commonly in combination with the metals, forming sulphurets. The greater part of that which is used in the arts, is the produce of volcanic countries. Its colour is yellow with a shade of green; it is nearly inodorous and tasteless, insoluble in water, and is with difficulty dissolved by spirit of wine. The sp. gr. of sulphur is about 2; at a moderate temperature it melts, and at a higher one is converted into vapour; it burns readily with a lambent blue flame, and suffocating vapours of sulphurous acid are formed, by its combining with the oxygen of the air during combustion. When pure, or crystallized, it is frequently translucent. The primary form of the crystal is *an acute octahedron with a rhombic base*, subject to various modifications.

In commerce, the various kinds of sulphur are distinguished by the names of Crude Sulphur; Flowers of Sulphur (which are the Sulphur Sublimatum of the Pharmacopœia); and Roll Sulphur, prepared by melting crude sulphur, and pouring it while fluid into moulds.

Potassæ Sulphurētum.

Sulphuret of Potash.

Take of Washed sulphur an ounce,
Subcarbonate of potash two ounces;
Rub them together, and then heat them in a covered crucible on the fire until they unite.

Process.—When sulphur and subcarbonate of potash are heated together, the carbonic acid is expelled from the latter, and three-fourths of the potash, or oxide of potassium, are decomposed; its oxygen combines with sulphur to form sulphuric acid, and this uniting with the one-fourth of the undecomposed potash, sulphate of potash results. The potassium of the decomposed potash combines also with sulphur, and sulphuret of potassium is formed; so that the Potassæ Sulphuretum of the Pharmacopœia is a compound of sulphate of potash and sulphuret of potassium, when the operation has been properly conducted. The peculiar properties of the compound depend upon the sulphuret of potassium.

280 Subcarbonate of Potash:
- 88 Carbonic Acid *Gas*
- 144 Potash = 24 Oxygen + 120 Potassium
- 48 Potash

48 Potash + (24 Oxygen + 16 *Sulphur.* = 40 Sulphuric Acid) = 88 *Sulphate of Potash*

120 Potassium + 48 *Sulphur* = 168 *Sulphuret of Potassium*

88 *Sulphate of Potash* + 168 *Sulphuret of Potassium* = *Potassæ Sulphuretum.* P. L.

Qualities.—This substance is hard, and of a liver-brown colour, and hence its former name of Hepar Sulphuris. It is inodorous while dry, but when moistened it emits a smell of sulphuretted hydrogen. Its taste is acrid and bitter. By exposure to the air this preparation is soon spoiled, for the sulphur and potassium both attracting oxygen, sulphate of potash is formed; it then becomes inodorous and white, and is totally unfit for use. It dissolves readily in water, or at least the sulphuret of potassium does, and decomposes a portion of it, the oxygen of which forms potash with the potassium; and the hydrogen combining with the sulphur, sulphuretted hydrogen results from their union.

Incompatibles.—This compound is decomposed by acids, which combine with the potash, and expel sulphuretted hydrogen gas; it is decomposed also by solutions of most of the metals, which, uniting with the sulphur, are precipitated in the state of sulphuret or of hydrosulphuret.

Medicinal uses.—It is principally used externally in cutaneous diseases, and has been recommended as a lotion for the itch in infants, and is stated to have succeeded after the sulphur ointment has failed. It is rarely used internally.

Sulphur Lōtum.

Washed Sulphur.

Take of sublimed sulphur a pound;

Pour boiling water upon it, so that the acid, if there be any, may be entirely washed away; then dry it.

Process.—By the operation of washing it is intended to free the sulphur from any acid which it may be supposed to contain.

Sulphur Præcipitātum.

Precipitated Sulphur.

Take of Sublimed sulphur a pound,
Fresh lime two pounds,
Water four gallons ;

Boil the sulphur and the lime together in the water, then filter the liquor through paper, and drop in as much muriatic acid as may be necessary to precipitate the sulphur ; lastly, wash this repeatedly with water until it becomes tasteless.

Process.—When lime and sulphur are boiled together in water, a portion of the fluid appears to be decomposed, and its oxygen and hydrogen unite with separate portions of the sulphur to form two different compounds, and these again combine with the lime and render it soluble. When muriatic acid is added, it takes the lime, expels sulphuretted hydrogen gas, and precipitates sulphur ; the muriate of lime remains in solution.

Qualities.—Sulphur præcipitatum differs only from sublimed sulphur in being whiter, which it owes to combination with a small quantity of water. The substance formerly called Lac Sulphuris is a very impure preparation ; it is formed by adding sulphuric acid instead of muriatic, to the solution of sulphur and lime ; so that the sulphur is precipitated in mixture with a large quantity of sulphate of lime. This is easily detected by heating the precipitated sulphur in a crucible : if it be pure it will be totally volatilized, but any sulphate of lime which it may contain will be left in the state of a white powder.

Medicinal use.—It is employed as a laxative. Dose, from ʒj. to ʒij.

VEGETABLES.

VEGETABLES are to be collected, from the places and soil where they grow spontaneously, in dry weather, when they are neither wet from rain nor dew. They are to be collected annually, and those which have been kept longer than a year, are to be thrown away.

ROOTS are commonly to be dug up before the stalks or leaves shoot forth.

BARKS ought to be collected at that season when they can be most easily separated from the wood.

LEAVES are to be gathered after the flowers are blown; and before the seeds are ripe.

FLOWERS are to be gathered as soon as they are blown.

SEEDS are to be collected as soon as they are ripe, and before they begin to fall from the plant. They should be kept in their own proper seed vessels.

Vegetabilium Præparatio.

The Preparation of Vegetables.

Vegetables, soon after they are gathered, excepting those which are to be used fresh, should be thinly spread, and dried as quickly as possible by the aid of so gentle a heat, that their colour may remain unchanged. They should then be kept in places or convenient vessels, excluded from light and moisture.

Lay up those roots, which we have directed to be kept fresh, in dry sand. Cut the Squill Root, before it is dried, into transverse slices, previously peeling off the dry external coats.

Put Pulpy Fruits, if unripe, or if too ripe and dry, in a moist place to soften; then press the pulp through a hair sieve; boil it afterwards over a slow fire, frequently stirring it; and lastly, evaporate the water, by the aid of a water-bath, until the pulp has acquired a proper consistence.

Pour boiling water upon the bruised Cassia Pods, so that the pulp may be washed out; press this first through a very coarse sieve, and afterwards through a hair one; lastly, evaporate the water, by the aid of a water-bath, until the pulp acquires a proper consistence.

Of fruits that are ripe and fresh, press the pulp or juice through a sieve without boiling.

Gummi-Resīnæ.

Gum-Resins.

Separate Opium most carefully from all foreign substances, especially from those which are external. Let opium be kept *soft*, fit to form pills; and let it also be kept *hard*, by drying it with the aid of a water-bath, so that it may be reduced to powder.

Those Gum-Resins are to be preferred, which can be chosen in such a perfect state as to require no purification. If, however, they appear to be impure, boil them in water until they soften, and press them through a hempen cloth; then set them by, that the resinous part may subside. Pour off the supernatant liquor, evaporate it by the aid of a water-bath, and towards the end of the evaporation mix the resinous part intimately with the gummy.

The Gum-Resins, which melt easily, may be purified by putting them into an ox bladder, and keeping them in boiling water, until they become soft enough to be separated from their impurities by pressing them through a hempen cloth.

Dissolve Storax Balsam in rectified spirit and strain the solution: then let the spirit distil, by the aid of a gentle heat, until the balsam has acquired a proper consistence.

EXPRESSED OILS.

THESE substances, sometimes termed fat or fixed oils, are usually obtained by expression, as the name adapted in the Pharmacopœia denotes. The greater part of them are viscid fluids; but some of them, as palm-oil and cocoa-nut oil, are soft solids, at a mean temperature; and those which are usually fluid congeal at about 32°: they have but little odour, and are nearly or quite insipid. The colour varies in different oils: cocoa-nut oil is white, almond oil yellowish, olive oil has a yellowish-green tint, linseed oil is of a brown colour, and palm oil is reddish. They are insoluble in water, and, with the exception of castor oil, they are but little soluble in alkohol. They are generally lighter than water. By exposure to the air, they absorb oxygen and become rancid. If they have been expressed with the assistance of heat, they are more subject to rancidity.

When heated to about 600°, or upwards, they are decomposed, and yield carburetted hydrogen gas. These oils combine with oxide of lead, and this combination is the basis of various plaisters. They are triple compounds of different proportions of oxygen, hydrogen, and carbon.

Olĕum Amygdalārum.

Oil of Almonds.

Macerate either sweet or bitter almonds in cold water for twelve hours, and bruise them; then, without using heat, express the oil.

Medicinal uses.—In the form of emulsion, in coughs, and other pulmonary complaints. The oil should be nearly colourless, inodorous and insipid. It possesses the same properties whether it is obtained from bitter or sweet almonds.

Olĕum Līnī.

Linseed Oil.

Bruise the linseed; then, without using heat, express the oil.

Medicinal uses.—Emollient and demulcent. Its taste is nauseous, and therefore seldom used internally. It is sometimes employed in enemas, in flatulent colic, &c.

Olĕum Ricĭni.

Castor Oil.

Having taken off the outer coat of castor seeds, bruise them; and then, without using heat, express the oil.

Medicinal use.—Purgative. Dose, from f℥iv. to f℥iss. It should be nearly colourless, and inodorous. When heat has been used in the expression, it is frequently rancid and of a dark colour. It differs from most fixed oils in combining readily with spirit of wine.

DISTILLED OILS.

These substances are frequently called volatile, essential, or æthereal oils. Their chemical characters are nearly the same from whatever vegetables they are procured; but in their sensenible qualities they vary considerably, possessing different colours, consistence, smell, and taste; the two latter properties are, of course, derived from that of the plant from which they are obtained; their colours, like those of the fluid fixed oils, are various shades of yellow, green, and brown: they are generally fluid; but some of them, as especially oil of auiseed, congeal by a very moderate reduction of temperature. They are very sparingly soluble in water, but sufficiently so to impart their smell and flavour to it. They are very readily dissolved by spirit of wine, and they boil at different temperatures. Their volatility is much increased by the presence of water, with the vapour of which they rise in distillation at a temperature considerably below their boiling point. They are extremely combustible, and much more so than the expressed oils. Most of them are lighter than water, but some sink in that fluid: among the former are the oils of lavender, rosemary, and mint; and of the latter, the oils of cassia, cinnamon, and cloves are examples. They are easily decomposed by sulphuric and by nitric acid, and when suddenly mixed with the latter, some of them inflame.

Like the expressed oils, they are composed of different proportions of oxygen, hydrogen, and carbon.

The volatile oils are capable of dissolving the fixed oils, and hence the latter are sometimes employed in adulterating them: this fraud may be easily detected by dropping some of the suspected oil on paper: if there be any fixed oil mixed with it, it will remain on the paper after exposure to a moderate heat. Where a cheaper volatile oil has been employed to adulterate a more costly one, the detection can scarcely be made by any other means than by the difference of odour. If spirit of wine be mixed with the oil, then, when it is dropped upon water, a milky fluid is formed, instead of there remaining a transparent film of oil on the surface of the water.

Olĕum Anīsi.	*Oil of Anise.*
Anthemĭdis.	*Chamomile.*
Carŭi.	*Carraway.*
Junipĕri.	*Juniper.*
Lavendŭlæ.	*Lavender.*
Menthæ Piperītæ.	*Peppermint.*
Menthæ Virĭdis.	*Spearmint.*
Origăni.	*Marjoram.*
Pimentæ.	*Pimenta.*
Pulegĭi.	*Pennyroyal.*
Rosmărīni.	*Rosemary.*

The seeds of anise and carraway, the flowers of chamomile and lavender, the berries of juniper and pimenta, the tops of rosemary, and the fresh herbaceous parts of the rest, are to be employed.

Put any one of them into an alembic, and pour upon it as much water as will cover it, then let the oil distil into a large refrigeratory.

Let the water which distils over with the oils of carraway, peppermint, spearmint, pimenta, and pennyroyal, be kept for use.

Olĕum Succĭni.

Oil of Amber.

Put amber into an alembic, so that by the aid of a sand-bath, heated gradually, an acid liquor, the oil, and a salt impregnated with the oil, may distil from it; then let the oil be twice re-distilled.

Olĕum Terebinthĭnæ Rectificātum.

Rectified Oil of Turpentine.

Take of Oil of turpentine a pint,
Water four pints;
Let the oil distil.

DISTILLED WATERS.

The odour and pungency of plants frequently resides in their essential oil, and this has its volatility so much increased by the vapour of water, that they may be distilled together, and a sufficient quantity of the oil is dissolved by the water to give it the peculiar taste and smell of the plant. Distilled waters are intended merely as vehicles for the exhibition of active remedies.

When distilled waters have been long kept, they undergo a kind of decomposition and become mucilaginous and sour.

Aqua Destillāta.

Distilled Water.

Take of water ten gallons;

First distil four pints; then, having rejected them, distil four gallons. Keep distilled water in a glass bottle.

Almost all spring and river waters contain saline impurities; these are generally carbonic acid, carbonate of lime, sulphate of lime, and common salt. There are some preparations whose power is much diminished, and whose solutions are rendered turbid by these compounds. Such, more especially, are lime-water, acetate and subacetate of lead; and sulphate of iron is decomposed even by the atmospheric air which water always contains. Water may be nearly purified from carbonic acid, carbonate of lime, and atmospheric air, by mere ebullition; but by this, owing to the evaporation which takes place, the pro-

portion of the other impurities is increased, and therefore water which has been long boiled, may be more impure even than before ebullition.

The following tests will determine the presence of the usual impurities:

Lime-Water.—If carbonic acid be present, this will cause precipitation of carbonate of lime before ebullition, but not after it.

Solution of Nitrate of Barytes.—If sulphate of lime be present, this will give a precipitate insoluble in nitric acid.

Solution of Oxalate of Ammonia.—If this give any precipitate before the water is boiled, it may be owing to the presence either of carbonate or of sulphate of lime; but if only after ebullition, then to the presence of sulphate, provided nitrate of barytes gives also a precipitate.

Solution of Nitrate of Silver.—If common salt or any muriate be contained in water, this re-agent will afford a precipitate insoluble in nitric acid.

Few chemists are, I believe, in the practice of keeping a still for the purpose of distilling water only; yet this ought always to be done, or the water will have a faint smell of the last herbs which have been subjected to distillation.

Distilled water is inodorous, and tasteless and vapid on account of the absence of air. A wine pint, at a medium temperature, weighs almost exactly 7272 grains, and an ounce consequently weighs 454·5 grains. If perfectly pure, distilled water produces no change in the solution of subacetate of lead, nitrate of barytes, oxalate of ammonia, nitrate of silver, or in lime-water.

To every gallon of the following waters, add five fluid-ounces of proof spirit for the purpose of preserving them.

Aqua Anēthi.

Dill Water.

Take of Dill seeds bruised, a pound;

Pour on them so much water, that, after the distillation, a sufficient quantity may remain to prevent empyreuma. Distil one gallon.

Aqua Carŭi.

Carraway Water.

Take of Carraway seeds bruised, a pound;
Pour on them so much water, that, after the distillation, a sufficient quantity may remain to prevent empyreuma. Distil one gallon.

Aqua Cinnamōmi.

Cinnamon Water.

Take of Cinnamon bark bruised, a pound, *or*
Oil of cinnamon, *by weight*, five scruples;
Pour so much water on the oil, or on the bark previously macerated in water for twenty-four hours, that, after the distillation, a sufficient quantity may remain to prevent empyreuma. Distil one gallon.

Aqua Fœnicŭli.

Fennel Water.

Take of Fennel seeds bruised, a pound;
Pour on them so much water, that, after the distillation, a sufficient quantity may remain to prevent empyreuma. Distil one gallon.

Aqua Menthæ Piperītæ.

Peppermint Water.

Take of Peppermint dried,* a pound and a half, *or*
Oil of peppermint, *by weight*, three drachms;
Pour on the herb or on the oil so much water, that, after the distillation, a sufficient quantity may remain to prevent empyreuma. Distil one gallon.

Aqua Menthæ Virĭdis.

Spearmint Water.

Take of Spearmint dried,* a pound and a half, *or*
Oil of spearmint, *by weight*, three drachms;
Pour on the herb or on the oil so much water, that, after the distillation, a sufficient quantity may remain to prevent empyreuma. Distil one gallon.

Aqua Pimentæ.

Pimenta Water.

Take of Pimenta bruised, half a pound,
Water a pint;
Macerate the berries in water for twenty-four hours; then add to them so much water, that, after the distillation, a sufficient quantity may remain to prevent empyreuma. Distil one gallon.

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* When fresh herbs are used, the quantities here directed must be doubled.

Aqua Pulegii.

Pennyroyal Water.

Take of Pennyroyal dried,* a pound and a half, *or*
Oil of pennyroyal, *by weight*, three drachms;

Pour on the herb or on the oil so much water, that, after the distillation, a sufficient quantity may remain to prevent empyreuma. Distil one gallon.

Aqua Rosæ.

Rose Water.

Take of Damask-rose petals eight pounds;

Pour on them so much water, that, after the distillation, a sufficient quantity may remain to prevent empyreuma. Distil one gallon.

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* When fresh herbs are used, the quantities here directed must be doubled.

INFUSIONS.

Infusions are mere solutions of vegetable matter in water, which is sometimes used cold, but in the London Pharmacopœia it is in every instance directed to be boiling: in this state it is poured upon the substance the active principles of which are intended to be dissolved. The aromatic, bitter, astringent, and mucilaginous properties of vegetable products are, to a considerable extent, soluble in water; while resinous bodies, on the contrary, are totally unacted upon by that fluid.

The substances infused should be only coarsely powdered, or cut into thin slices; for if they are employed in the state of fine powder, they not only prevent the proper action of the water by the proximity of their particles; but the infusion is with difficulty rendered clear.

Hard water should, as much as possible, be avoided, for it not only acts less powerfully as a solvent, but the precipitation which takes place by boiling it renders it extremely turbid, and increases the difficulty of procuring a clear infusion. The infusions prepared with cold water are weaker than those in which hot water is employed, unless the digestion be continued for a much longer time.

Dried vegetables are stated to yield their virtues by infusion more readily than when they are in a recent state.

If infusions be long kept, and especially in hot weather, they become turbid, deposite the matter which they had dissolved, and undergo decomposition; they ought, therefore, never to be kept for use longer than a few hours, but prepared for the occasion upon which they are prescribed.

Infūsum Anthemĭdis.

Infusion of Chamomile.

Take of Chamomile flowers two drachms,
Boiling water half a pint;
Macerate for ten minutes in a covered vessel, and strain.

Medicinal use.—Stomachic, in dyspepsia; and the infusion prepared with cold water, is said to be more grateful than that made with hot. Dose, f℥ i. to f ℥ ij.

It is employed warm for promoting the operation of emetics.

Incompatibles.—Solutions of the salts of iron, mercury, silver, and lead.

Infūsum Armoracĭæ Composĭtum.

Compound Infusion of Horse-Radish.

Take of Fresh horse-radish root sliced,
Mustard seeds bruised, of each an ounce,
Compound spirit of horse-radish a fluidounce,
Boiling water a pint;
Macerate the root [and the mustard seeds] in the water for two hours in a covered vessel, and strain; add the compound spirit of horse-radish to the strained liquor.

Medicinal use.—Stimulant in paralysis. Dose, f℥ iss.

Incompatibles.—Solutions of the salts of silver and mercury, and of the alkaline carbonates.

Infūsum Aurantĭi Composĭtum.

Compound Infusion of Orange-Peel.

Take of Orange-peel dried, two drachms,
Lemon-peel fresh, a drachm,
Cloves bruised, half a drachm,
Boiling water half a pint;
Macerate for a quarter of an hour in a covered vessel, and strain.

Medicinal use.—Stomachic. Dose f℥ i. to f℥ ij.

Infūsum Calumbæ.

Infusion of Calumba.

Take of Calumba sliced, two drachms,
Boiling water half a pint;
Macerate for two hours in a covered vessel and strain.

Medicinal uses.—Tonic and stomachic. Dose f℥ jss. to f℥ ij. It very soon spoils; it contains no astringent matter.

Incompatibles.—Solutions of the acetates of lead, oxymuriate of mercury and lime-water.

Infūsum Caryophyllōrum.

Infusion of Cloves.

Take of Cloves bruised, a drachm,
Boiling water half a pint;
Macerate for two hours in a covered vessel, and strain.

Medicinal uses.—Stimulant and stomachic. Dose f℥ i. to f℥ ij. It is generally exhibited in combination with other medicines.

Incompatibles.—Lime-water, solutions of the preparations of iron, zinc, lead, silver, and antimony.

Infūsum Cascărillæ.

Infusion of Cascarilla.

Take of Cascarilla bark bruised, half an ounce,
Boiling water half a pint;
Macerate for two hours in a covered vessel, and strain.

Medicinal uses.—Tonic and stomachic. Dose f℥ jss. to f℥ ij. *Incompatibles* similar to those enumerated under the last infusion.

Infūsum Catĕchu Composĭtum.

Compound Infusion of Catechu.

Take of Extract of catechu two drachms and a half,
Cinnamon bark bruised, half a drachm,
Boiling water half a pint;
Macerate for an hour in a covered vessel, and strain.

Medicinal use.—Astringent in diarrhœa. Dose f℥ i. to f℥ iij. every four hours.

Infūsum Cinchōnæ.

Infusion of Pale Bark.

Take of Lance-leaved cinchona bark (pale bark) half an ounce,
Boiling water half a pint;
Macerate for two hours in a covered vessel, and strain.

Medicinal uses.—Tonic in dyspepsia, &c. Dose f℥i. to f℥iij. three or four times a day.

Infūsum Cuspariæ.

Infusion of Cusparia.

Take of Cusparia bark (Angustura bark) bruised, two drachms,
Boiling water half a pint;
Macerate for two hours in a covered vessel, and strain.

Medicinal uses.—Tonic and stimulant in dyspepsia. Dose f℥jss. to f℥ij.
Incompatibles.—The solutions of the salts of most metals.

Infūsum Digitālis.

Infusion of Fox-Glove.

Take of purple fox-glove leaves, dried, a drachm,
Spirit of cinnamon half a fluidounce,
Boiling water half a pint;
Macerate [the fox-glove leaves] for four hours in a covered vessel, and strain; then add the spirit.

Medicinal use.—Diuretic. Dose f℈ij. to f℥ss. twice a day.
Incompatibles.—It is decomposed by solutions of the salts of iron, and probably by those of most other metals.

Infūsum Gentiānæ Composĭtum.

Compound Infusion of Gentian.

Take of Gentian root sliced,
Orange-peel dried, of each a drachm,
Lemon-peel fresh, two drachms,
Boiling water twelve fluidounces;
Macerate for an hour in a covered vessel, and strain.

Medicinal uses.—Stomachic and tonic. Dose f℥jss. to f℥ij.
Incompatibles.—Solution of acetate of lead, and of sulphate of iron.

Infūsum Līni Composĭtum.

Compound Infusion of Linseed.

Take of Linseed bruised, an ounce,
Liquorice root sliced, half an ounce,
Boiling water two pints;
Macerate for four hours near the fire, in a covered vessel, and strain.

Medicinal uses.—Demulcent in dysuria and catarrh.
Incompatibles.—Preparations of lead and iron, and probably most metallic salts.

Infūsum Quassiæ.

Infusion of Quassia.

Take of Quassia wood sliced, a scruple,
Boiling water half a pint;
Macerate for two hours in a covered vessel, and strain.

Medicinal uses.—Stomachic and tonic. Dose f℥ jss. to f℥ ij.

Incompatibles.—There are few substances which produce any effect upon this solution; even the preparations of iron are unchanged by it.

Infūsum Rhēi.

Infusion of Rhubarb.

Take of Rhubarb root sliced, a drachm,
Boiling water half a pint;
Macerate for two hours in a covered vessel, and strain.

Medicinal uses.—Stomachic and tonic. Dose f℥ i. to f℥ iij.

Incompatibles.—The stronger acids, metallic solutions, some astringent infusions. The alkalies darken the colour of this infusion, but do not decompose it.

Infūsum Rosæ Composĭtum.

Compound Infusion of Roses.

Take of Red rose petals dried, half an ounce,
Diluted sulphuric acid three fluidrachms,
Double refined sugar an ounce and a half,
Boiling water two pints and a half;

Pour the water upon the rose petals in a glass vessel; then mix in the acid, and macerate for half an hour. Lastly, strain the liquor, and add the sugar to it.

Medicinal uses.—Astringent and refrigerant. Dose f℥ j. to f℥ jss. or more.

Incompatibles.—Alkalies and earths, and all substances which combine with sulphuric acid, or are acted upon by small quantities of it; acetate of lead of course throws down a copious precipitate. Sulphate of iron gives it a brown colour, but no precipitate is formed for some hours. It is much employed as a vehicle for the exhibition of cathartic salts.

Infūsum Sennæ Composĭtum.

Compound Infusion of Senna.

Take of Senna leaves an ounce and a half,
Ginger root sliced a drachm,
Boiling water a pint;

Macerate for an hour in a covered vessel, and strain the liquor.

Medicinal use.—Purgative. Dose f℥ iij. to f℥ iv.

This infusion spoils quickly; when exposed to the air a yellow precipitate is formed in it, and its purgative qualities are lost.

Incompatibles.—Strong acids, lime-water and most metallic salts.

Infūsum Simaroūbæ.

Infusion of Simarouba.

Take of Simarouba bark bruised, half a drachm,
Boiling water half a pint;
Macerate for two hours in a covered vessel, and strain.

Medicinal uses.—Tonic, in the latter stages of dysentery. Dose f℥ij.

Incompatibles. Lime-water, alkaline carbonates; many metallic salts, especially those of lead, silver and mercury.

Infūsum Tabāci.

Infusion of Tobacco.

Take of Tobacco leaves a drachm,
Boiling water a pint;
Macerate for an hour in a covered vessel, and strain.

This is employed only as an enema in incarcerated hernia and in ileus.

MUCILAGES.

MUCILAGES are viscid solutions of gummy matter in water; or mixtures of them without solution. They are prepared in some instances by merely triturating the mucilaginous matter with cold water, and in other cases hot water is employed; some of the substances used in these preparations are insoluble in cold water, such as starch and tragacanth, but they render the water sufficiently mucilaginous by mere mixture with it.

Mucilages are chiefly used as vehicles for other substances, either to suspend powders in liquids, to diffuse oils or resinous matter in water, or to give form and tenacity to pills.

Mucilāgo Acacĭæ.

Mucilage of Acacia Gum.

Take of Acacia gum (gum arabic) in powder, four ounces,
Boiling water half a pint;

Add the water, by degrees, to the gum, rubbing them together, until a mucilage is produced.

Mucilāgo Amy̆li.

Mucilage of Starch.

Take of Starch three drachms,
Water a pint;

Add the water, by degrees, to the starch, rubbing them together; then boil until a mucilage is produced.

The starch should be perfectly white and not rendered blue, as it usually is, by smalts.

DECOCTIONS.

Decoctions differ from infusions only in the application of a longer continued heat; by this the solvent power of the water is increased, and some substances which are sparingly dissolved by mere infusion in hot water, have their virtues readily extracted by boiling in it.

In some cases, however, infusions contain more of the active principle of medicines than decoctions; thus aromatics and substances, which contain essential oils, are diminished in power by their volatilization during the long continued action of the heat. Another circumstance to be noticed, is this, that some of the principles, which are dissolved by hot water, are deposited as the solution cools; this is particularly the case with cinchona, and therefore this decoction should always be exhibited turbid, from the suspension of particles which had become insoluble by cooling. Decoctions should always be strained hot, for the reasons which have been ust stated, and they ought to be prepared either with soft or with distilled water; undistilled water which has been long boiled should be especially avoided.

Decoctions suffer decomposition by being kept, in the same manner as infusions, and consequently they ought to be prepared only a very few hours before they are intended for use.

Decoctum Alŏës Composĭtum.

Compound Decoction of Aloes.

Take of Extract of liquorice half an ounce,
Subcarbonate of potash two scruples,
Extract of spiked aloe in powder,
Myrrh in powder,
Saffron, of each a drachm,
Water a pint,
Compound tincture of cardamoms, four fluidounces;

Let the liquorice, the subcarbonate of potash, the aloes, the myrrh, and the saffron, be boiled down with the water to twelve fluidounces; then strain, and add the compound tincture of cardamoms.

Medicinal uses.—Mildly cathartic. Dose from f℥ ss. to f℥ j.
Incompatibles.—Acids, acidulous salts, earthy and metallic salts, and all substances which are decomposed by subcarbonate of potash, or which decompose it.

Decoctum Cinchōnæ.

Decoction of Pale Bark.

Take of Lance-leaved cinchona bark (pale bark) bruised, an ounce,
Water a pint;

Boil for ten minutes in a covered vessel, and strain the liquor while it is hot.

Medicinal uses.—Tonic in dyspepsia, &c. Dose from f℥ j. to f℥ iij. two or three times a day. Although cinchona in the form of decoction is less powerful than when exhibited in substance,

yet in the former state it may be taken by persons with whom the powder would not agree.

It has been found that all the varieties of cinchona contain peculiar vegetable bodies which possess alkaline properties, and in which their medicinal powers are supposed to reside. The cinchona lancifolia, or pale bark, directed to be used in preparing the decoction, in addition to other vegetable products, contains the vegetable alkali cinchonia, combined with a peculiar acid, called the kinic acid, which is rather in excess; the compound is kinate of cinchonia.

Cinchona cordifolia, or yellow bark, contains a vegetable alkaline base different from cinchonia, and which has been called quina: cinchona oblongifolia, or red bark, yields both cinchonia and quina, and in larger quantity than the other varieties of cinchona.

The following account of the method of preparing, and of the properties of cinchonia, is extracted from Dr. Henry's Elements of Chemistry, vol. ii. p. 289.—

"A pound of pale bark, bruised small, is to be boiled for an hour, in three pints of a very dilute solution of pure potash. The liquid, after being suffered to cool, is then to be strained through a fine cloth with pressure, and the residuum repeatedly washed and pressed. The cinchona, thus washed, is to be slightly heated in a sufficient quantity of water, adding muriatic acid gradually until litmus paper is slightly reddened. When the liquid is raised nearly to the boiling point, it is to be strained, and the cinchona again pressed. To the strained liquor, while hot, add an ounce of sulphate of magnesia, and after this add solution of potash till it ceases to occasion any precipitate. When the liquor is cold, collect the precipitate on a filter, wash and dry it, and dissolve it in hot alcohol. On evaporation of the alcohol, the cinchonia crystallizes in delicate prisms.

"Cinchonia thus obtained is white, translucent, crystalline, and soluble in 2500 times its weight of boiling water, but a considerable part separates in cooling. Its taste is bitter, though long in being developed, owing to its insolubility; but its acid solutions have a strong taste of Peruvian bark. It is neither fusible nor volatile at moderate temperatures. It is very soluble in alcohol and ether, and sparingly so in fixed and volatile oils."

Cinchonia restores the colour of litmus, which has been reddened by an acid; unites with all the acids, and, with the greater number, forms compounds which are perfectly neutral; the muriate is very soluble in water, dissolves in alkohol and

crystallizes in delicate prisms; the nitrate does not crystallize, while the oxalate, tartrate, and gallate of cinchonia are insoluble; hence it is that infusion of galls precipitates the decoction of cinchona.

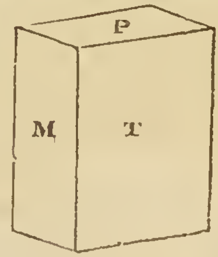
There exists great difference in the results of the analyses of cinchonia. According to Mr. Brande, taking the mean of two experiments, it is composed of

Carbon	79·30
Azote	13·72
Hydrogen ..	7·18
	100·20

The experiments of MM. Dumas and Pelletier give the following as the composition of cinchonia; and it will be observed that the analyses differ remarkably, for according to the latter chemists, it contains nearly 8 per cent. of oxygen, whereas by Mr. Brande's analysis none appears to exist in it:

Carbon	76·97
Azote	9·02
Hydrogen ...	6·22
Oxygen	7·97
	100·18

Sulphate of cinchonia is a colourless crystalline salt, readily soluble in water; it possesses the peculiar flavour of the cinchona; the primary form of the crystal of sulphate of cinchonia appears to be a *doubly oblique prism*, having cleavages parallel to all its planes; the cleavage parallel to P is not very distinct; there are some crystals which do not appear to be immediately related to this form; they are probably hemitrope, or rather quadruple crystals, united by their secondary planes; but they were not, in the specimen examined, sufficiently distinct in character to admit their precise relations to the primary form to be traced.



P on M	95°	50′
P on T	90	0
M on T	83	30

The composition of sulphate of cinchonia in its crystallized state has not, I believe, been ascertained; but according to MM. Dumas and Pelletier, 100 parts of cinchonia saturate 13·021 parts of sulphuric acid; so that independently of water of crystallization, if it contains any, sulphate of cinchonia is composed of

Sulphuric acid ..	11·56
Cinchonia	88·44
	100·00

Quina. This alkaline base may be obtained from yellow bark, by a process similar to that employed for the preparation of cinchonia from pale bark. It is not crystallizable, but, when dried, presents a whitish porous mass, almost insoluble in water, but extremely bitter. It is distinguished also from cinchonia by its forming, with the same acids, salts which differ as to their form, and the proportion of their elements.

The following are the results of the analysis of this substance by the chemists above named; and it appears by Mr. Brande's analysis that quina differs from cinchonia in containing oxygen; while according to MM. Dumas and Pelletier, it exists in both.

	Mr. Brande.	MM. Dumas & Pelletier.
Carbon	73·80	75·02
Azote	13·00	8·45
Hydrogen	7.65	6·66
Oxygen	5·55	10·43
	100·00	100·56

Sulphate of quina forms crystals which are remarkable for their pearly lustre. It is soluble in cold water, a property which is much increased by excess of acid. This preparation is considered as the most active form of the salifiable principle of yellow bark; for the method of preparing it, I may refer the reader to Dr. Paris's Pharmacologia, vol. ii. p. 145.

Sulphate of quina, independently of water of crystallization, if it contains any, is probably composed of

Sulphuric acid	10
Quinia	90
	100

L 2

Sulphate of quina has lately been employed in medicine, with the same intentions as the cinchonia itself; given in doses of 5 grains it is stated to have cured cases of intermittent fever which have resisted bark, although perfectly well borne, and freely administered. Quina, uncombined with an acid, appears to be capable of producing similar effects; but for a more particular account of the use of these substances, I beg to refer to a paper by Dr. Elliotson, in the 12th vol. of the Medico-Chirurgical Transactions.

Kinic acid is obtained by macerating cinchona in cold water; the infusion, after concentration, is to be set aside in an open vessel, and a salt will be obtained in plates, which is tasteless, soluble in cold water, and insoluble in alkohol. This salt is kinate of lime; when oxalic acid is added to it, oxalate of lime is precipitated, and the solution by evaporation yields divergent crystals of kinic acid of a brownish colour, and a very acid taste, and rather bitter. It is distinguishable from other vegetable acids by forming a soluble salt with lime, and by its not precipitating lead or silver from their respective solutions.

Decoctum Cydoniæ.

Decoction of Quince Seeds.

Take of Quince seeds two drachms,
Water a pint;
Boil over a slow fire for ten minutes; then strain.

Medicinal uses.—Quince seeds contain a large quantity of inodorous and insipid mucilaginous matter, which is readily dissolved by water. The decoction is viscid and nearly colourless; it has been recommended as an application to erysipelatous surfaces: it is also employed in apthous affections and excoriations of the mouth, &c. It very readily suffers decomposition, and on this account should never be kept ready prepared.

Incompatibles.—Alkohol, acids, and most metallic solutions.

Decoctum Dulcamāræ.

Decoction of Woody Nightshade.

Take of Woody nightshade stalks sliced, an ounce,
Water a pint and a half;
Boil down to a pint, and strain.

Medicinal uses.—Diuretic and narcotic. Dose from fʒjv. to f℥j. three times a day, combined with an aromatic.

Decoctum Hordĕi.

Decoction of Barley.

Take of Pearl barley two ounces,
Water four pints and a half;
First wash away with cold water any foreign matter from the barley; then pour upon it half a pint of the water, and boil for a few minutes. Having thrown away this water, pour the rest, boiling hot, upon the barley; then boil down to two pints, and strain.

Decoctum Hordĕi Composĭtum.

Compound Decoction of Barley.

Take of Decoction of barley two pints,
Figs sliced, two ounces,
Liquorice root sliced and bruised, half an ounce,
Raisins stoned, two ounces,
Water a pint;
Boil down to two pints, and strain.

Medicinal uses.—This and the former decoction are useful demulcents in fever, phthisis, gonnorhœa and strangury, given *ad libitum.*

Decoctum Lichēnis.

Decoction of Liverwort.

Take of Liverwort an ounce,
Water a pint and a half;
Boil down to a pint, and strain.

Medicinal uses.—Boiling water extracts the mucilage of the lichen; this decoction is employed as a demulcent, and as a mild nutritious substance easy of digestion; it is less disagreeable when the bitter matter of the lichen has been previously removed by maceration. Dose, a wine-glass full occasionally.

Decoctum Malvæ Composĭtum.

Compound Decoction of Mallows.

Take of Mallows dried, an ounce,
Chamomile flowers dried, half an ounce,
Water a pint;
Boil for a quarter of an hour, and strain.

Medicinal uses.—This decoction is employed in fomentations and enemas.

Decoctum Papavĕris.

Decoction of Poppy.

Take of White poppy capsules sliced, four ounces,
Water four pints;
Boil for a quarter of an hour, and strain.

Medicinal uses.—External as an anodyne fomentation in painful swellings, and in the excoriations produced by the acrid discharge of ulcers. It is recommended that the seeds should not be rejected.

Decoctum Quercûs.

Decoction of Oak Bark.

Take of Oak bark, an ounce,
Water two pints;
Boil down to a pint, and strain.

Medicinal uses.—This decoction is principally employed in the form of gargle, injection or lotion, as a local astringent. It is nearly inodorous, and its taste is strongly astringent.

Incompatibles.—Decoction of yellow bark, most metallic salts, solution of isinglass; alkaline solutions destroy its astringency.

Decoctum Sarsăpărillæ.

Decoction of Sarsaparilla.

Take of Sarsaparilla root sliced, four ounces,
Boiling water four pints;

Macerate for four hours, in a covered vessel, near the fire; then take out the sarsaparilla and bruise it. When bruised, put it again into the liquor, and macerate it in the same manner for two hours more; then boil it down to two pints, and strain.

Medicinal uses.—Alterative. Demulcent. Dose from f℥ iv. to f℥ viij. three or four times a day.

Incompatibles.—Lime-water and acetate of lead, and also some solutions of mercury.

Decoctum Sarsăpărillæ Composĭtum.

Compound Decoction of Sarsaparilla.

Take of Decoction of sarsaparilla, boiling, four pints,
Sassafras root sliced,
Guaiacum wood shavings,
Liquorice root bruised, of each an ounce,
Mezereon root bark, three drachms;

Boil for a quarter of an hour, and strain.

Medicinal uses.—Diaphoretic and alterative. It is esteemed to be useful in secondary syphilis and in rheumatism. Dose, f℥ iv. to f℥ vj. three or four times a day.

Decoctum Senĕgæ.

Decoction of Senega.

Take of Senega root an ounce,
Water two pints;
Boil down to a pint, and strain.

Medicinal uses.—Expectorant, diuretic and diaphoretic. It has been recommended in pneumonic affections attended with accumulation of mucus in the bronchia, and as a diaphoretic in chronic rheumatism. Dose, f℥ iss. to f℥ iij. two or three times a day.

Decoctum Ulmi.

Decoction of Elm Bark.

Take of Fresh elm bark bruised, four ounces,
Water four pints;
Boil down to two pints, and strain.

Medicinal uses.—Diuretic, and in herpetic eruptions. Its powers are questionable. Dose, f℥ iv. to f℥ vj. three or four times a day.

Decoctum Verātri.

Decoction of White Hellebore.

Take of White hellebore root bruised, an ounce,
Water two pints,
Rectified spirit, two fluidounces;
Boil the hellebore root in the water down to a pint, and strain; then, when the decoction is cold, add the spirit.

Medicinal uses.—It is employed externally as a lotion in scabies, tinea capitis, and other cutaneous eruptions.

EXTRACTS.

Extracts are those preparations which are obtained when vegetable substances are boiled in water, or have their soluble parts dissolved in proof spirit of wine, or when the expressed juices of recent plants are boiled down until of a proper consistence for forming into pills; and in some cases, the evaporation is carried so far that the extract is reducible to powder.

As the medicinal power of some vegetable substances resides, to a certain extent, in principles which are insoluble in water, but dissolve in spirit of wine, different modes of operating are adopted; in the first case, that is when the virtues of the medicines are completely soluble in water, such for example as those of gentian, the extract is termed a watery extract; when the vegetable contains resinous or other matter insoluble in water, it is extracted by spirit, and then termed a spirituous extract; while the juice of recent plants, when evaporated to a proper degree, are called sometimes inspissated juices, but they are now classed by the College with the extracts.

That part of vegetable bodies which is soluble in water, and reduced by evaporation to the state of extract, has, on this account, received the name of extractive matter, extract or extractive; it is evident, however, that extracts must consist of all the various substances soluble in water, and they must therefore contain very different ingredients.

Still, however, there is a prevailing quality which characterizes that substance which has been called extractive; and perhaps that of gentian may be regarded as a type of it. The general properties of extractive are the following: it has a strong taste, dependant upon that of the plant which yields it; is readily soluble in water and in weak spirit, but not in pure alkohol. It has a brownish colour; by being repeatedly dissolved in water and evaporated to dryness, it appears to absorb oxygen, and at length is rendered insoluble in water. Solution of extract is decomposed by several substances, as the acids, many metallic salts, and solutions of alumina; the alkalies readily dissolve extract, and increase the colour of a weak solution of it.

Although the virtues of some substances are concentrated by being reduced to the state of extract, yet they probably suffer diminution of power during the process of evaporation; and still greater injury arises, if the heat employed be too great, especially towards the end of the process, and the heat of steam or that of a water-bath should always be employed.

In preparing all extracts, evaporate the water as quickly as possible, in a shallow vessel, by a water-bath, until they have acquired a consistence proper for forming pills, and towards the end stir them constantly with a spatula.

Sprinkle upon all the softer extracts a small quantity of rectified spirit.

Extractum Aconīti.

Extract of Aconite.

Take of Aconite leaves fresh, a pound;

Bruise them in a stone mortar, sprinkling a little water upon them; then press out the juice, and evaporate it unstrained, until it acquires a proper consistence.

Medicinal uses.—Narcotic; in some cases diuretic. The dose should not at first exceed half a grain; but it may be gradually

increased to gr. v. The medicinal power of aconite is stated to reside in a peculiar alkaline body, which has been termed *aconita*. This extract is of a brown colour; it has a disagreeable smell, and an acrid taste, and is not much employed.

Extractum Alöës Purificātum.

Purified Extract of Aloes.

Take of Extract of spiked aloe in powder, a pound,
Boiling water a gallon;

Macerate for three days with a gentle heat; then strain the liquor, and set it by, that the dregs may subside. Pour off the clear solution, and evaporate it until it acquires a proper consistence.

Medicinal uses.—Purgative. Stomachic. Dose gr. v. to gr. xv. By solution in water this medicine is deprived of its resinous matter, and it is then said to be less irritating and more purgative in equal doses.

Extractum Anthemĭdis.

Extract of Chamomile.

Take of Chamomile flowers dried, a pound,
Water a gallon;

Boil down to four pints, and strain the liquor while it is hot; then evaporate it until it acquires a proper consistence.

Medicinal uses.—Tonic. Stomachic. Dose gr. x. to gr. xx. twice a day. It is generally exhibited in combination with rhubarb, or some other medicine of the same class. This extract is of a deep brown colour, and has a bitter taste. It does not possess the peculiar odour of the chamomile, for the volatile oil upon which that depends, is dissipated during ebullition.

Extractum Belladonnæ.

Extract of Deadly Nightshade.

Take of Deadly nightshade leaves fresh, a pound;
Bruise them in a stone mortar, sprinkling a little water upon them; then press out the juice, and evaporate it unstrained, until it acquires a proper consistence.

Medicinal uses.—Narcotic. Diuretic. Dose gr. j. to gr. v. cautiously administered, for an overdose produces great distress; and even when taken in small doses for a considerable length of time, it induces sickness, vertigo and dimness of sight, with other effects indicating the propriety of discontinuing the use of it. In large doses it is poisonous. The virtues of belladonna, like those of aconite, appear to reside in a peculiar alkaline base which has been called *atropia.*

Extractum Cinchōnæ.

Extract of Cinchona.

Take of Lance-leaved cinchona bark (pale bark) bruised, a pound,
Water a gallon;
Boil down to six pints, and strain the liquor while it is hot. In the same manner boil the residue, four times in an equal quantity of water, and strain. Lastly, mix all the decoctions together, and evaporate the mixture, until it acquires a proper consistence.

This Extract should be kept *soft*, so as to be fit for forming pills, and *hard*, so that it may be reduced to powder.

Medicinal uses.—Tonic. Stomachic. Dose gr. x. to gr. xxx. This extract is of a dark brown colour, of a bitter taste, and is nearly inodorous. The active matter of cinchona is more soluble in spirit than in water; during ebullition, however, a considerable portion of it is dissolved by the water, but by the exposure to air, which takes place during the evaporation, a part of the extract is deteriorated by oxidizement, and consequently the extract is not equal in efficacy to the quantity of bark from which it is procured.

Extractum Cinchōnæ Resinōsum.

Resinous Extract of Cinchona.

Take of Lance-leaved cinchona bark (pale bark) bruised, two pounds,
Rectified spirit a gallon;
Macerate for four days, and strain. Let the tincture distil, with the aid of a water-bath, until the extract has acquired a proper consistence.

Medicinal uses.—Tonic. Stomachic. Dose gr. x. to gr. xxx. The spirit extracts from the cinchona such parts of it as are insoluble in water; this extract ought therefore to be more powerful than the former; their external qualities do not greatly differ.

Extractum Colocynthĭdis.

Extract of Colocynth.

Take of Colocynth pulp a pound,
Water a gallon;
Boil down to four pints, and strain the liquor while it is hot; then evaporate it until it acquires a proper consistence.

Medicinal use.—Cathartic. Dose gr. v. to gr. xxx. It is a dark coloured, and extremely bitter extract.

Extractum Colocynthĭdis Composĭtum.

Compound Extract of Colocynth.

Take of Colocynth pulp sliced, six ounces,
Extract of spiked aloe powdered, twelve ounces,
Scammony gum-resin in powder, four ounces,
Cardamom seeds in powder, an ounce,
Hard soap three ounces,
Proof spirit a gallon;

Macerate the colocynth pulp in the spirit for four days with a gentle heat; strain the liquor, and add to it the aloes, the scammony and the soap; then evaporate the spirit until the extract acquires a proper consistence, and towards the end, mix in the cardamom seeds.

Medicinal uses.—Carthartic. Dose gr. v. to gr. xxx. It is esteemed to be particularly efficacious in relieving habitual costiveness, and obstinate visceral obstructions, when combined with calomel.

Extractum Conĭi.

Extract of Hemlock.

Take of fresh hemlock leaves a pound;

Bruise them in a stone mortar, sprinkling a little water upon them; then press out the juice, and evaporate it unstrained, until it acquires a proper consistence.

Medicinal uses.—Narcotic. Sedative. Dose gr. v. to gr. xx. or more.

This extract has a brownish green colour, and a disagreeable smell and taste. According to Dr. Paris, the whole virtues of the plant reside in a peculiar resinous matter insoluble in water, and for which he has proposed the name of *conein*. In too large doses it produces giddiness, nausea, and tremor, a heavy sensation is experienced about the eyes, and the bowels are gently relaxed; until however the production of one or more of these sensations, there is no certainty that the use of the medicine has been sufficiently persisted in.

Extractum Elatĕrĭi.

Extract of Elaterium.

Slice ripe wild cucumbers; express the juice very gently, and strain it through a fine hair sieve into a glass vessel; then set it by for some hours until the thicker part has subsided. Having poured away the thinner supernatant part, dry the thicker part with a gentle heat.

Medicinal uses.—Hydragogue. Cathartic. Dose, from half a grain to two grains. This extract has a greenish colour, its taste is bitter and rather acrid; and when tolerably pure, it is light, pulverulent and inflammable. Its properties have been particularly examined by Dr. Paris, and according to his experiments, they reside in a peculiar substance which he has called *elatin*, and of which the extract contains only about 10 per cent. —Pharmacologia, vol. ii. p. 241. 5th edition.

Extractum Gentĭānæ.

Extract of Gentian.

Take of Gentian root sliced, a pound,
Boiling water a gallon;

Macerate for twenty-four hours, then boil down to four pints; strain the liquor while it is hot; lastly, evaporate it until it acquires a proper consistence.

Medicinal uses,—Tonic. Stomachic. Dose, gr. x to gr. xxx. twice or three times a day. This extract is of a dark brown colour, nearly inodorous and bitter. It is frequently exhibited in combination with chalybeates.

Extractum Glycyrrhīzæ.

Extract of Liquorice.

Take of Liquorice root sliced, a pound,
Boiling water a gallon ;

Macerate for twenty-four hours; then boil down to four pints, and strain the liquor while it is hot; lastly, evaporate it until it acquires a proper consistence.

Medicinal use.—Demulcent in tickling coughs. This extract is usually imported from Spain, and when it has had a fresh form given to it, is sold under the name of refined liquorice.

Extractum Hæmatoxy̆li.

Extract of Logwood.

Take of Logwood bruised, a pound,
Boiling water a gallon ;

Macerate for twenty-four hours ; then boil down to four pints, and strain the liquor while it is hot; lastly, evaporate it until it acquires a proper consistence.

Medicinal uses.—Astringent in protracted diarrhœa and dysentery. Dose, gr. x to gr. xxx. in some aromatic distilled water. This extract is of a deep red colour, and has a sweetish astringent taste. It becomes very hard by keeping, so that pills made of it pass through the body unchanged. It is said to contain a peculiar vegetable matter, which has been called *hœmatin.*

Extractum Humŭli.

Extract of Hops.

Take of Hops four ounces,
Boiling water a gallon;

Boil down to four pints, and strain the liquor while it is hot; lastly, evaporate it until it acquires a proper consistence.

Medicinal use.—Sedative. Dose, gr. v to gr. xx. Its efficacy is questionable. It is a dark bitter extract, totally devoid of the aromatic principle of the hop. The virtues of the hop have been stated to reside in a peculiar substance which has been called *lupulin.*

Extractum Hyoscyămi.

Extract of Henbane.

Take of fresh henbane leaves a pound;

Bruise them in a stone mortar, sprinkling a little water upon them; then press out the juice, and evaporate it unstrained, until it acquires a proper consistence.

Medicinal uses.—Narcotic. Dose, gr. v to gr. xx. in pills. It is particularly employed in those cases in which the costiveness frequently induced by opium would be hurtful. This extract has a brownish-green colour, with a disagreeable smell and taste. Like many other narcotics, its virtues appear to reside in an alkaline substance, to which the name of *hyoscyama* has been given.

Extractum Jalăpæ.

Extract of Jalap.

Take of Jalap root bruised, a pound;
Rectified spirit, four pints,
Water a gallon;

Macerate the jalap root in the spirit for four days, and pour off the tincture; boil the residue in the water down to two pints; then strain the tincture and the decoction separately, and let the latter be evaporated, and the former distilled, until each grows thick. Lastly, mix the extract with the resin, and evaporate the mixture, until it acquires a proper consistence.

Let this extract be kept *soft* so as to be fit for forming pills, and *hard* so that it may be reduced to powder.

Medicinal use.—Purgative. Dose, gr. x to gr. xx. This extract is nearly inodorous, has a brown colour and a bitter taste.

Extractum Lactūcæ.

Extract of Lettuce.

Take of fresh lettuce leaves a pound;

Bruise them in a stone mortar, sprinkling a little water upon them; then press out the juice, and evaporate it unstrained, until it acquires a proper consistence.

Medicinal use.—Narcotic. Dose, gr. v to gr. xv. The powers of this preparation are however very questionable. The virtues of the lettuce appear to reside in a peculiar principle, which Dr. Duncan has called *lactucarium*.

Extractum Opii.

Extract of Opium.

Take of Opium sliced, sixteen ounces,
Water a gallon;

Add a little water to the opium, and macerate for twelve hours that it may become soft; then, the remaining water being gradually added, rub them until they are thoroughly mixed, and set the mixture by that the dregs may subside; lastly, strain the liquor, and evaporate it until it acquires a proper consistence.

Process.—Opium, as I shall presently more particularly mention, contains two peculiar vegetable compounds, in which its power resides; one of these is an alkaline substance called *morphia*; the other does not possess similar chemical properties, and has received the name of *narcotine*. Morphia exists in opium in combination with a peculiar acid called the *meconic acid*, and the salt is termed *meconate of morphia.*

It appears to me that much of the power of opium is lost, in the method of purification directed by the College. I subjected 72 parts of opium to the heat of steam, until it became pulverizable, and then treated it with cold water, in the manner above directed; the residuum being dried and weighed, shewed that 30 parts of opium had been dissolved; by boiling in water 9 additional parts were taken up, and rectified spirit, with the assistance of heat, dissolved 7 parts more. It appears therefore that more than one-third of the extractive matter of the opium is lost by using cold water only; that the part insoluble in water contains narcotic power, is proved by the observations of Sertuerner, who directs that tincture of opium should not only be prepared, with pure alkohol, but kept in a moderately warm place, to prevent the separation of morphia which occurs in a cold one.

Qualities.—Although the cold infusion of opium possesses the peculiar smell of the drug, yet it is dissipated during evaporation, so that the extract is nearly inodorous. It is of a brown

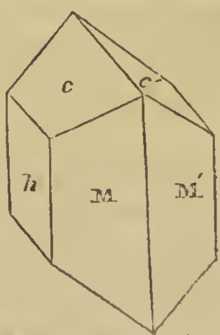
colour, and has a bitter taste. Dose, gr. j to gr. v. for an adult. The form of extract is to be preferred to that of tincture, when it is intended to continue the operation of the medicine, and not to obtain its full effects at once; but in cases of accident, or in which the effects of opium are to be called into immediate action, the tincture should be employed. The vegetable acids appear to increase the solvent action of water, with respect to opium, without interfering with or diminishing its narcotic power.

I shall now give a brief account of the peculiar bodies contained in opium, and to which its narcotic properties are owing.

Morphia, and process for procuring it.—Macerate 30 parts of opium during five days in 100 parts of water, frequently stirring the mixture; filter the solution, and add to it 2 parts of magnesia, free from carbonic acid; boil the mixture for ten minutes, separate the sediment by a filter, and wash it with cold water until it runs through colourless: after this treat it with spirit of sp. gr. 0·985, alternately hot and cold, as long as any colouring matter is dissolved; the residuum is then to be boiled in spirit of sp. gr. 0·915 for a few minutes; the morphia will be dissolved by the spirit, and deposited in crystals as it cools.

The meconate of morphia, which the water has dissolved, is decomposed by the magnesia, and meconate of magnesia is formed; the morphia being but little soluble in water is precipitated, and remains mixed with the undissolved magnesia: by the action of water, and of weak spirit, alternately hot and cold, the colouring matter is dissolved, and the magnesia and morphia left, and when these are boiled in stronger spirit the morphia only is dissolved, and being less soluble in cold than in hot spirit, it crystallizes on the cooling of the solution.

Qualities.—Morphia, when pure, is colourless, inodorous, and intensely bitter; the crystals have a pearly lustre, and their primary form is a *right rhombic prism*, only the lateral planes of which appear on the crystals; one cleavage only has been obtained parallel to the plane *h*.



M on M′	127° 20′
M on *h*	116 20
h on *c*	132 20
c on *c′*	95 20

It is sparingly soluble even in boiling water, but dissolves readily in boiling alkohol; these solutions have alkaline properties, turning vegetable yellows reddish brown, and blues green. It exhibits the powers of an alkali, not only in combining with acids to form salts, but also by decomposing the solutions of metallic salts, precipitating their oxides, owing to its greater affinity for the acids with which they are combined.

By a strong heat morphia is decomposed, yielding carbonate of ammonia, oil and charcoal; it burns readily in atmospheric air.

Morphia may also be obtained by adding a solution of ammonia to one of opium in acetic acid; the acetate of morphia formed is decomposed, and the morphia is immediately precipitated of a brownish colour, which may be removed by boiling in water with animal charcoal.

The following acids form crystallizable salts with morphia: the acetic, carbonic, sulphuric, muriatic, nitric, meconic, and tartaric.

Composition.—The results of the analysis of MM. Dumas and Pelletier agree much more nearly with that of Mr. Brande, than their analysis of cinchonia already quoted:

MM. Dumas and Pelletier.		Mr. Brande.	
Carbon	72·02	Carbon	72·00
Azote	5·53	Azote	5·50
Hydrogen	7·01	Hydrogen	5·50
Oxygen	14·84	Oxygen	17·00
	99·40		100·00

Medicinal uses.—Although it seems sufficiently proved that morphia possesses the characteristic properties of opium, yet its strength is not commensurate with its apparent concentration; and, when uncombined, it exerts but little action, in consequence of its insolubility; the spirituous solution being exhibited in repeated doses, each containing half a grain of morphia, the effects produced were at first excitation, then weakness, numbness, and tendency to fainting; vinegar being then swallowed caused violent vomiting.

Meconic acid, and process for obtaining it.—Dissolve the magnesian residuum, left after the action of the hot spirit in procuring morphia, in dilute sulphuric acid, and add muriate of barytes to the solution; a rose-coloured precipitate falls, which consists of sulphate and meconate of barytes; digest this with hot and very weak sulphuric acid; the filtered solution when reduced in

quantity by evaporation, yields coloured crystals of meconic acid, even before it is cold: these are to be washed with a little water, dried, and sublimed in a flask.

Qualities.—This acid is readily soluble both in alkohol and in water; the solution has a sour taste, and turns vegetable blue colours red. Meconic acid combines with alkalies to form salts, termed meconates, several of which crystallize. The distinguishing proprety of meconic acid is, that it produces an intense red colour when added to solutions of peroxide of iron. It has not been analyzed.

Narcotine, and process for obtaining it.—Evaporate an aqueous solution of opium until it has acquired the consistence of syrup, and then mix it with sulphuric ether, and shake the mixture: repeat this with fresh portions of ether, as long as it deposits any crystals of narcotine on distillation.

Qualities.—The crystals of this substance have a pearly lustre, are soluble in fixed oil, and in acids; slightly soluble in alkohol, and insoluble in water; they have no action on vegetable colours, and are incapable of neutralizing alkalies.

Medicinal qualities.—It is supposed that the excitement which opium produces is owing to narcotine, and the subsequent sedative effect more particularly to morphia.

Composition.—According to MM. Dumas and Pelletier, narcotine consists of

Carbon	68·88
Azote	7·21
Hydrogen	5·91
Oxygen	18·00
	100·00

The watery solution of opium indicates the presence of an acid by turning vegetable blues red; whether this effect is owing to the presence of meconate of morphia with excess of acid, or whether it is derived from the presence of another acid contained in opium, has not I believe been ascertained; it appears, however, that this acid differs from the meconic, in not being volatile, and in producing no peculiar effect upon the salts of peroxide of iron.

Extractum Papavĕris.

Extract of Poppy.

Take of Poppy capsules bruised, the seeds being rejected, a pound,
Boiling water a gallon;
Macerate for twenty-four hours; then boil down to four pints, and strain the liquor while it is hot. Lastly, evaporate it until it acquires a proper consistence.

Medicinal uses.—Anodyne. Narcotic. Dose, from gr. ij to gr. xx. given in the form of pills. This extract is said to be less apt than opium to occasion nausea, head-ach, and delirium, and therefore to be preferred for procuring sleep in diseases in which the head is much affected.

Extractum Rhēi.

Extract of Rhubarb.

Take of Rhubarb root powdered, a pound,
Proof spirit a pint,
Water seven pints;
Macerate for four days with a gentle heat; then strain, and set the liquor by that the dregs may subside. Pour off the liquor, and, when strained, evaporate it until it acquires a proper consistence.

Medicinal use.—Purgative. Dose, from gr. x to gr. xxx, in the form of pills, or dissolved in an aromatic water. The powers of rhubarb are said to be much diminished during the process of extraction.

Extractum Sarsăpărillæ.

Extract of Sarsaparilla.

Take of Sarsaparilla root sliced, a pound,
Boiling water a gallon ;
Macerate for twenty-four hours; then boil down to four pints, and strain the liquor, while it is hot; lastly, evaporate it until it acquires a proper consistence.

Medicinal use.—Alterative. Dose, gr. x to ℈j. given in pills, or dissolved in the decoction. Its virtues are much questioned.

Extractum Stramŏnĭi.

Extract of Thorn Apple.

Take of Thorn apple seeds a pound,
Boiling water a gallon ;
Macerate for four hours in a covered vessel near the fire; then take out the seeds, and after bruising them in a stone mortar, put them again into the liquor. Lastly, evaporate it until it acquires a proper consistence.

Medicinal use.—Narcotic. Dose, gr. $\frac{1}{4}$ to gr. ij. daily, in maniacal and asthmatic affections.

Extractum Taraxăci.

Extract of Dandelion.

Take of Dandelion root fresh and bruised a pound,
Boiling water a gallon;

Macerate for twenty-four hours; then boil down to four pints, and strain the liquor while it is hot; lastly, evaporate it until it acquires a proper consistence.

Medicinal uses.—Aperient. Deobstruent. Dose, gr. x to ʒj. in obstructions of the liver, and in visceral diseases.

MIXTURES.

The term *mixture* was originally employed in pharmacy to denote those preparations, in which a soluble substance forming a viscid solution with water, was used to suspend an insoluble one; as when gum arabic is dissolved for the purpose of holding chalk in mechanical mixture; there are a few of the preparations now classed as mixtures which are scarcely included in this definition; and, in prescribing, the term mixture is frequently used to signify a compound, all the ingredients of which are in perfect solution.

Mistūra Ammoniăci.

Mixture of Ammoniac.

Take of Ammoniac two drachms,
Water half a pint;
Rub the ammoniac with the water, gradually added, until they are thoroughly mixed.

Medicinal use.—Expectorant. Dose, f℥ss to f℥j. It may be advantageously combined with tincture of squills, and more so than with the vinegar of the same medicine, for it is slightly curdled by acids. In this mixture the resinous and insoluble matter of the ammoniacum is suspended by the solution of its gummy constituent.

Mistūra Amygdălārum.

Almond Mixture.

Take of Almond confection two ounces,
Distilled water a pint;
Add the water to the almond confection gradually, rubbing them until they are thoroughly mixed; then strain.

Medicinal uses.—Demulcent and diluent. It is generally employed as a vehicle for more active medicines. Acids, spirit of wine, and of course tinctures, render this preparation turbid, and should not be exhibited with it.

Mistūra Assafœtĭdæ.

Mixture of Assafœtida.

Take of Assafœtida two drachms,
Water half a pint;

Rub the assafœtida with the water, gradually added, until they are thoroughly mixed.

Medicinal use.—Antispasmodic. Dose, from f℥ss to f℥j. repeated at short intervals in hysteric paroxysms. As it is extremely nauseous, it is rarely used, except as an enema in worms, and the convulsions of infants, arising from irritation of the bowels during dentition.

Mistūra Camphŏræ.

Camphor Mixture.

Take of Camphor half a drachm,
Rectified spirit ten minims,
Water a pint;

First rub the camphor with the spirit, then with the water, gradually added, and strain.

Medicinal use.—Stimulant. Dose, f℥j to f℥ij. every three or four hours. Water dissolves very little camphor, this mixture is therefore generally used only as a vehicle for important medicines.

Mistūra Cornu Usti.

Mixture of Burnt Hartshorn.

Take of Burnt hartshorn two ounces,
Gum arabic an ounce,
Water three pints;
Boil down to two pints, constantly stirring, and strain.

This mixture consists of phosphate of lime, a totally inert substance, suspended in mucilage.

Mistūra Cretæ.

Chalk Mixture.

Take of Prepared chalk, half an ounce,
Refined sugar three drachms,
Gum Arabic in powder, half an ounce,
Water a pint;
Mix.

Medicinal use.—Antacid in diarrhœa. Dose, f℥j to f℥ij. every three or four hours; its utility is increased when it is combined with opium, catechu, or any other astringent. It is, of course, incompatible with every acid and acidulous salt.

Mistūra Ferri Composĭta.

Compound Mixture of Iron.

Take of Myrrh, in powder, a drachm,
Subcarbonate of potash twenty-five grains,
Rose-water seven ounces and a half,
Sulphate of iron, in powder, a scruple,
Spirit of nutmeg half a fluidounce,
Refined sugar a drachm ;

Rub the myrrh with the spirit of nutmeg and the subcarbonate of potash; and to these, whilst rubbing, add first the rose-water with the sugar, and then the sulphate of iron. Put the mixture immediately into a proper glass vessel, and stop it.

Process.—In this preparation double decomposition takes place, precisely as when sulphate of iron is decomposed in preparing the ferri subcarbonas; except that, subcarbonate of potash being used in this case, sulphate of potash is formed instead of sulphate of soda.

Qualities.—This preparation consists of protocarbonate of iron in a state of suspension. Iron in this state is much more active than when it has become peroxide and more difficultly soluble. This mixture has at first a greenish colour, but the protocarbonate of iron, to which that is owing, very readily absorbs oxygen from the air, and becomes reddish-yellow peroxide, precisely similar to the precipitate formed when water is added to liquor ferri alkalini.

Mistura ferri composita should always be prepared at the moment at which it is wanted, for not only is its efficacy diminished by keeping, but, from the different appearances which it presents when recently prepared, to those it exhibits when long kept, the patient would naturally suppose that some mistake had occurred in preparing it.

Medicinal uses.—Astringent. Tonic. Dose, f℥i to f℥ij. two or three times a day. It is especially recommended in hysteria and chlorosis, and is unquestionably one of the most efficacious preparations of iron.

Incompatibles—Acids and acidulous salts, which dissolve the protocarbonate of iron. Vegetable astringents render it black, and are therefore incompatible with it.

Mistūra Guaiăci.

Mixture of Guaiacum.

Take of Guaiacum gum resin a drachm and a half,
Refined sugar two drachms,
Mucilage of gum arabic, two fluidrachms,
Cinnamon-water eight fluidounces;

Rub the guaiacum with the sugar, then with the mucilage, and to these, whilst rubbing, add gradually the cinnamon-water.

Medicinal uses.—Stimulant. Diaphoretic. Dose, f℥ss. to f℥ij two or three times a day.

Mistūra Moschi.

Musk Mixture.

Take of Musk,
Gum arabic powdered,
Refined sugar, of each a drachm,
Rose-water six fluidounces;

Rub the musk with the sugar, then with the gum, and to these, whilst rubbing, add gradually the rose-water.

Medicinal use.—Antispasmodic. Dose, f℥i to f℥ij.

SPIRITS.

Spirit of wine, or alkohol, diluted with water, is employed in pharmacy for various important purposes, and of different degrees of strength, according to circumstances. In its concentrated state it is termed *alkohol;* when diluted with a small proportion of water it is called *rectified spirit;* and when more largely diluted, *proof spirit.* The two latter are articles of the Materia Medica, and the former is prepared by the process stated below.

The first preparations in which Spirit is used in the Pharmacopœia, are classed together under the title of *Spiritus;* it includes solution of ammonia, several aromatic distilled spirits, and a solution of camphor: *Tincturæ* form the second class of preparations; the third are the *Ætherea;* and the last, the *Vina.*

Alcŏhol.

Alkohol.

Take of Rectified spirit a gallon,
Subcarbonate of potash three pounds;

Put into the spirit a pound of the subcarbonate of potash, previously heated to 300°, and macerate for twenty-four hours, frequently shaking the mixture; then, having poured off the spirit, add to it the subcarbonate of potash which is left, heated to the same degree; and lastly, by means of a water-bath, let the alkohol distil, which is to be kept in a stopped vessel.

The specific gravity of alkohol is to the specific gravity of distilled water, as ·815 to 1·000.

Process.—Subcarbonate of potash is a deliquescent salt, and consequently affinity exists between it and water; and when it is mixed with rectified spirit, the water is separated from the alkohol, for which it has less affinity than for the subcarbonate of potash.

The compound of water and subcarbonate of potash is totally insoluble in alkohol, so that a piece of turmeric paper dipped into it, does not indicate the presence of any alkali. The same subcarbonate of potash may be repeatedly used for this purpose, after it has been dried; nor is it deteriorated for general use, when the spirit is of a proper degree of purity.

The strongest spirit which has hitherto been procured is of sp. gr. 0·796, at the temperature of 60°: and it is probably alkohol, free from water. The alkohol of the Pharmacopœia consists, by weight, nearly of

Alkohol (sp. gr. 0·796)	93
Water	7
	100

Rectified spirit of wine, of sp. gr. 0·835, is composed, by weight, of

Alkohol (sp. gr. 0·796)	85
Water	15
	100

And proof spirit, of sp. gr. 0·930, is constituted, by weight, of

Alkohol (sp. gr. 0·796)	44
Water	56
	100

According to Saussure, alkohol is composed of nearly

Carbon....	52·17	or 2 atoms...........	= 12
Oxygen...	34·79	1 atom	= 8
Hydrogen..	13·04	3 atoms...........	= 3
	100.00	Weight of its atom	= 23

Qualities.—Alkohol, when pure, is colourless and transparent; its odour is rather pleasant, and its taste is penetrating. It has never been rendered solid by exposure to any degree of cold, either natural or artificial. Alkohol is that part of fermented liquors from which their intoxicating power is derived. It is

extremely volatile, producing great cold during its evaporation; and the stronger the alkohol, the greater is the cold produced. It is highly inflammable, and during combustion, water and carbonic acid are generated, the quantity of the former exceeding that of the weight of alkohol burned.

Alkohol of sp. gr. 0·800 boils at 174°, or 38° below the boiling point of water, and it is very expansible by heat. When it is mixed with water, heat is evolved, the capacity of the mixture being less than that of its ingredients; and the mixture occupies considerably less space than the water and alkohol do when separate.

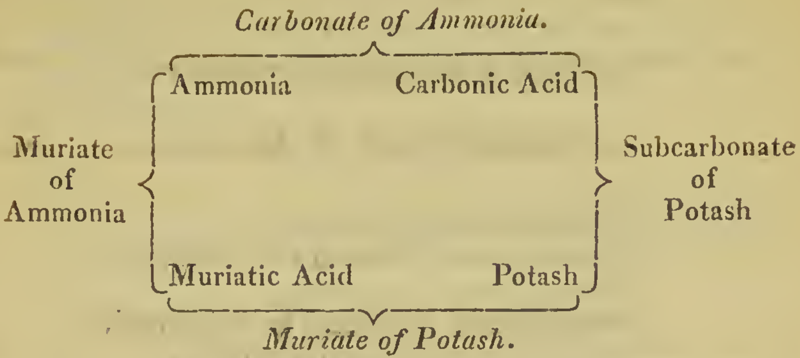
Alkohol prevents animal substances which are immersed in it from decay; and hence its use in the preservation of anatomical preparations. Its solvent power is very great, and it is on this account that it is in many cases employed in pharmacy, especially in the preparation of the tinctures of those substances which are resinous, and insoluble in water. It is also largely employed in the preparation of ether.

Spirĭtus Ammonĭæ.

Spirit of Ammonia.

Take of Proof spirit three pints,
Muriate of ammonia four ounces,
Subcarbonate of potash six ounces;
Mix, and, with a slow fire, let a pint and a half distil into a cooled receiver.

Process.—This is a case of double decomposition; the muriatic acid of the muriate of ammonia combines with the potash of the subcarbonate, and muriate of potash is formed, which remains in solution; the carbonate of ammonia resulting from the union of the carbonic acid and ammonia being a volatile salt, is vaporized with the spirit, and condensed in the receiver.



When muriate of ammonia is decomposed by carbonate of lime, the carbonate of ammonia sublimed, which is the *Ammoniæ Subcarbonas* of the Pharmacopœia, consists of proportions of acid and base, different from those in the carbonate obtained in this process, in which the muriate of ammonia is decomposed by carbonate of potash. The former, I have already stated, is a *sesquicarbonate*; but the latter is a *carbonate*, composed of one atom of each of its constituents, or

Carbonic acid...	56·5	or 1 atom acid......	= 22
Ammonia	43·5	1 atom base......	= 17
	100·0	Weight of its atom	= 39

As the carbonate obtained by the agency of carbonate of potash thus contains only two-thirds as much carbonic acid as that procured by the use of carbonate of lime, the greater pungency of spiritus ammoniæ than of liquor ammoniæ subcarbonatis, is readily accounted for.

Qualities.—Spirit of ammonia is a transparent colourless fluid; its smell is pungent and its taste is acrid, and it turns the yellow colour of turmeric brown, indicating its alkaline properties.

Medicinal uses.—Vide Spiritus Ammoniæ Aromaticus.

Officinal preparation.—Spiritus Ammoniæ Fœtidus.

Spirĭtus Ammonĭæ Aromatĭcus.

Aromatic Spirit of Ammonia.

Take of Cinnamon bark bruised,
Cloves bruised, of each two drachms,
Lemon Peel four ounces,
Subcarbonate of potash half a pound,
Muriate of ammonia five ounces,
Rectified spirit four pints,
Water a gallon ;
Mix, and let six pints distil.

Process.—The chemical products of this operation are similar to those of the last ; but in that, the quantity of subcarbonate of potash is rather too small to decompose the muriate of ammonia, and in this, the same quantity is directed for the decomposition of one-fourth more.

Qualities.—This preparation resembles the last, but is rendered more agreeable by the aromatics, whether applied to the nostrils or externally exhibited.

Incompatibles.—Acids, acidulous salts, earthy and metallic salts, and lime-water.

Officinal preparations.—Tinctura Guaiaci Ammoniata, Tinctura Valerianæ Ammoniata.

Medicinal use.—Stimulant in languors and flatulent colic. Dose, fʒss to f℥j. in water.

Spirĭtus Ammonĭæ Fœtĭdus.

Fetid Spirit of Ammonia.

Take of Spirit of ammonia two pints,
Assafœtida two ounces ;
Macerate for twelve hours ; then, with a slow fire, let a pint and a half distil into a cooled receiver.

Qualities.—Colourless, pungent, and, as its name expresses, fetid. When long kept it acquires a brownish colour.

Incompatibles.—The same as with the last preparation.

Medicinal uses.—Stimulant. Antispasmodic. Dose, f ʒ ss to f ʒ j. in water.

Spirĭtus Ammonĭæ Succinātus.

Succinated Spirit of Ammonia.

Take of Mastich three drachms,
Rectified spirit nine fluidrachms,
Oil of lavender fourteen minims,
Oil of amber four minims,
Solution of ammonia ten fluidounces ;

Macerate the mastich in the spirit that it may be dissolved ; then pour off the clear tincture ; lastly, add the other ingredients, and shake them all together.

Qualities.—This preparation differs from the four preceding in containing ammonia instead of the carbonate. It has a milky appearance, owing to the separation of the mastich from its solution in spirit by the liquor ammoniæ. It is commonly called *Eau de Luce*, but no oil of amber is contained in the preparation originally so denominated.

Incompatibles.—Acids; acidulous, metallic, and earthy salts.

Medicinal uses.—Stimulant and antispasmodic. Dose, ♏x to f ʒ ss. in water.

Spirĭtus Anīsi.

Spirit of Aniseed.

Take of Aniseed bruised, half a pound,
Proof spirit a gallon,
Water a sufficient quantity to prevent empyreuma;

Macerate for twenty-four hours; then, with a slow fire, let one gallon distil.

Medicinal uses.—Stimulant and Carminative in flatulent colic, &c. Dose, f℥ij to f℥iv. in water.

Spirĭtus Armoracĭæ Compositus.

Compound Spirit of Horseradish.

Take of Horse-radish root fresh and sliced,
Dried orange-peel, of each a pound,
Nutmegs bruised, half an ounce,
Proof spirit a gallon,
Water a sufficient quantity to prevent empyreuma;

Macerate for twenty-four hours; then, with a slow fire, let one gallon distil.

Medicinal use.—Stimulant. Dose, f℥ij to f℥iv.

Spirĭtus Camphŏræ.

Spirit of Camphor.

Take of Camphor four ounces,
Rectified spirit two pints ;
Mix, that the camphor may be dissolved.

Medicinal uses.—Stimulant. It is used only externally. It is frequently applied to chilblains, and in cases of chronic rheumatism and numbness.

It is decomposed by water, which, combining with the spirit, precipitates the camphor.

Spirĭtus Carŭi.

Spirit of Carraway.

Take of Carraway seeds bruised, a pound and a half,
Proof spirit a gallon,
Water, a sufficient quantity to prevent empyreuma ;
Macerate for twenty-four hours ; then, with a slow fire, let one gallon distil.

Medicinal uses.—Carminative. Stimulant. Dose, fʒij to fʒiv.

Spirĭtus Cinnamōmi.

Spirit of Cinnamon.

Take of Oil of cinnamon, *by weight*, five scruples,
Rectified spirit four pints and a half;

Add the spirit to the oil, and pour on them so much water that, after the distillation, a sufficient quantity may remain to prevent empyreuma; then, with a slow fire, let one gallon distil.

Medicinal uses.—Stomachic. Stimulant. Dose, f℥ij to f℥iv.

Spirĭtus Colchĭci Ammoniātus.

Ammoniated Spirit of Colchicum.

Take of Meadow saffron seeds bruised, two ounces,
Aromatic spirit of ammonia a pint;

Macerate for fourteen days, and strain.

Medicinal use.—Diuretic. Dose, f℥ss to f℥j. in water. The substances enumerated as incompatible with the Spiritus Ammoniæ aromaticus, are also such with this preparation.

Spirĭtus Junipĕri Composĭtus.

Compound Spirit of Juniper.

Take of Juniper berries bruised, a pound,
Carraway seeds bruised,
Fennel seeds bruised, of each an ounce and a half,
Proof spirit a gallon,
Water a sufficient quantity to prevent empyreuma;

Macerate for twenty-four hours; then, with a slow fire, let one gallon distil.

Medicinal uses.—Stimulant. Diuretic. Dose, fʒiij to f℥j. It is principally exhibited with other diuretics, as fox-glove, &c.

Spirĭtus Lavandŭlæ.

Spirit of Lavender.

Take of Fresh lavender flowers two pounds,
Rectified spirit a gallon,
Water a sufficient quantity to prevent empyreuma;

Macerate for twenty-four hours; then, with a slow fire, let one gallon distil.

Pharmaceutical uses.—In preparing the Spiritus Lavendulæ Compositus, and Linimentum Camphoræ Compositum.

Spirĭtus Lavandŭlæ Composĭtus.

Compound Spirit of Lavender.

Take of Spirit of lavender three pints,
Spirit of rosemary a pint,
Cinnamon bark bruised,
Nutmegs bruised, of each half an ounce,
Red saunders wood sliced, an ounce;
Macerate for fourteen days, and strain.

Qualities.—This preparation belongs rather to the class of Tinctures than of Spirits. It is of a fine red colour, and has an agreeable odour. Its taste is warm and stimulating.

Medicinal uses.—Stimulant. Stomachic, in languors, &c. Dose, from f℥ss to fʒij. in water or any convenient liquid.

Spirĭtus Menthæ Piperĭtæ.

Spirit of Peppermint.

Take of Oil of peppermint, *by weight*, six scruples and a half,
Rectified spirit four pints and a half;
Add the spirit to the oil, and pour on them so much water, that, after the distillation, a sufficient quantity may remain to prevent empyreuma; then, with a slow fire, let one gallon distil.

Medicinal uses.—Stimulant. Carminative. Dose, fʒij to f℥j.

Spirĭtus Menthæ Virĭdis.

Spirit of Spearmint.

Take of Oil of spearmint, *by weight*, six scruples and a half,
Rectified spirit four pints and a half;
Add the spirit to the oil, and pour on them so much water, that, after the distillation, a sufficient quantity may remain to prevent empyreuma; then, with a slow fire, let one gallon distil.

Spirĭtus Myristĭcæ.

Spirit of Nutmeg.

Take of Nutmegs bruised, two ounces,
Proof spirit a gallon,
Water a sufficient quantity to prevent empyreuma;
Macerate for twenty-four hours; then, with a slow fire, let one gallon distil.

Spirĭtus Pimentæ.

Spirit of Pimenta.

Take of Pimenta berries bruised, two ounces,
Proof spirit a gallon,
Water, a sufficient quantity to prevent empyreuma;
Macerate for twenty-four hours; then, with a slow fire, let one gallon distil.

Spirĭtus Pulegĭi.

Spirit of Pennyroyal.

Take of Oil of pennyroyal, *by weight*, seven scruples;
Rectified spirit four pints and a half;

Add the spirit to the oil, and pour on them so much water, that, after the distillation, a sufficient quantity may remain to prevent empyreuma; then, with a slow fire, let one gallon distil.

The last four preparations are used for the same purposes, and in similar doses, as the Spirit of Peppermint.

Spirĭtus Rosmarīni.

Spirit of Rosemary.

Take of Oil of rosemary, *by weight*, an ounce,
Rectified spirit a gallon;

Add the spirit to the oil, and pour on them so much water, that, after the distillation, a sufficient quantity may remain to prevent empyreuma; then, with the aid of a slow fire, let one gallon distil.

This is employed in the following officinal preparations: Spiritus Lavandulæ Compositus, and Linimentum Saponis Compositum.

TINCTURES.

Tinctures are solutions of various substances in spirit of wine of different degrees of strength; they are principally prepared from vegetable matters, but in some cases metallic salts are dissolved in it; in others the tinctures contain ammonia, and in one instance, animal matter is dissolved by spirit.

The substances which are best adapted for tinctures are those which are active in small doses, for if large ones should be required, they might be in many cases objectionable, on account of the quantity of spirit necessarily exhibited with them.

Those substances which are imperfectly soluble in water, or totally insoluble in it, or which spoil unless they are preserved by spirit, are proper for tinctures, provided they can be given in sufficiently large doses; opium, digitalis, &c. are bodies of this class.

Tinctures are frequently useful additions to infusions and decoctions, the spirit preventing the decomposition, which otherwise occurs rapidly. Tinctures which hold resinous matter in solution, such as that of guaiacum, suffer decomposition on the addition of water.

All Tinctures ought to be prepared in close glass vessels, and to be frequently shaken during maceration.

Tinctūra Aloës.

Tincture of Aloes.

Take of the Extract of spiked aloe in powder, half an ounce,
Extract of Liquorice, an ounce and half,
Water a pint,
Rectified spirit four fluidounces;
Macerate for fourteen days, and filter.

Medicinal uses.—Purgative. Stomachic. Dose, f℥ ss to f℥ iss.

Tinctūra Aloës Composĭta.

Compound Tincture of Aloes.

Take of Extract of spiked aloe in powder,
Saffron, of each three ounces,
Tincture of Myrrh two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Purgative. Stomachic. Dose, fʒj to fʒij.

Tinctūra Assafœtĭdæ.

Tincture of Assafœtida.

Take of Assafœtida four ounces,
Rectified spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Stimulant. Antispasmodic. Dose, f ʒ ss to f ʒ iss. This tincture is rendered turbid when mixed with water, owing to the precipitation of the resinous matter of the assafœtida.

Tinctūra Aurantĭi.

Tincture of Orange Peel.

Take of Fresh orange peel, three ounces,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Tonic. Stomachic. Dose, f ʒ ij to f ʒ iij. It is a useful adjunct to bitter infusions and decoctions.

Tinctūra Benzöini Composĭta.

Compound Tincture of Benzoin.

Take of Benzoin three ounces,
Storax balsam strained, two ounces,
Balsam of Tolu an ounce,
Extract of spiked aloe, half an ounce,
Rectified spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Stimulant. Expectorant. Dose, fʒss to fʒij. In chronic catarrh and confirmed asthma. It is decomposed by water, resinous matter being precipitated, and must therefore be triturated with yolk of egg, or with mucilage. It is more employed externally than internally, as a stimulant to languid ulcers; but its application to fresh wounds, for which it is mostly employed under the name of *Friar's Balsam*, appears to be injurious, by preventing the wound from healing by the first intention.

Tinctūra Calumbæ.

Tincture of Calumba.

Take of Calumba sliced, two ounces and a half,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Tonic. Stomachic. Dose, f ʒ j to f ʒ iij.

Tinctūra Camphŏræ Composĭta.

Compound Tincture of Camphor.

Take of Camphor two scruples,
Hard opium in powder,
Benzoic acid, of each a drachm,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal use.—Anodyne. Dose, f ʒ j to f ʒ iij. A fluid-ounce contains nearly two grains of opium.

Tinctūra Canthariĭdis.

Tincture of Cantharides.

Take of Cantharides bruised, three drachms,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Diuretic. Stimulant. Dose, ♏x to fʒj. given in some demulcent infusion. It is useful in gleets, fluor albus, and incontinence of urine. It is likewise employed externally as a stimulating embrocation or rubefacient, in conjunction with camphor liniment, &c.

Tinctūra Capsĭci.

Tincture of Capsicum.

Take of Capsicum berries, an ounce,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal use.—Stimulant. Dose, ♏x to fʒj. It is employed in the low stage of typhus, and similar cases.

Tinctūra Cardamōmi.

Tincture of Cardamom.

Take of Cardamom seeds bruised, three ounces,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Stimulant. Carminative. Dose, fʒj to fʒij. It is generally employed as an adjunct to bitter infusions, but less frequently than the following.

Tinctūra Cardamōmi Composĭta.

Compound Tincture of Cardamom.

Take of Cardamom seeds,
Carraway seeds,
Cochineal, of each bruised two drachms,
Cinnamon bark bruised, half an ounce,
Raisins stoned, four ounces,
Proof spirit, two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—As the former, and in similar doses.

Tinctūra Cascărillæ.

Tincture of Cascarilla.

Take of Cascarilla bark in powder, four ounces,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Tonic. Stomachic. Dose, f℥j to f℥ij.

Tinctūra Castorĕi.

Tincture of Castor.

Take of Castor in powder, two ounces,
Rectified spirit two pints;
Macerate for seven days, and filter.

Medicinal uses.—Antispasmodic. Stimulant. Dose, ♏xx to f℥ij.

Tinctūra Catĕchu.

Tincture of Catechu.

Take of Extract of catechu, three ounces,
Cinnamon bark bruised, two ounces,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal use.—Astringent. Dose, f℥j to f℥iij. It is a very useful and grateful adjunct to mistura cretæ in diarrhœa.

Tinctūra Cinchōnæ.

Tincture of Cinchona.

Take of Lance-leaved cinchona bark (pale bark) in powder, seven ounces,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Tonic. Stomachic Dose fʒj to fʒiij. It is principally used in mixtures, with the Infusion or Decoction of Bark.

Tinctūra Cinchōnæ Ammoniāta.

Ammoniated Tincture of Cinchona.

Take of Lance-leaved cinchona bark (pale bark) in powder, four ounces,
Aromatic spirit of ammonia two pints;
Macerate for ten days, and filter.

Medicinal uses.—Tonic. Stimulant. Dose, fʒss to fʒij. It is, of course, incompatible with acids; and with acidulous, earthy, and metallic salts.

Tinctūra Cinchōnæ Composĭta.

Compound Tincture of Cinchona.

Take of Lance-leaved cinchona bark (pale bark) in powder, two ounces,
Orange peel dried, an ounce and half,
Serpentary root bruised, three drachms,
Saffron, a drachm,
Cochineal in powder, two scruples,
Proof spirit, twenty fluidounces;
Macerate for fourteen days, and filter.

Medicinal uses.—Tonic. Stomachic. Dose, fʒj to fʒiij. It contains considerably less cinchona than the simple tincture, but is rendered more grateful by the admixtures of the bitters and aromatics.

Tinctūra Cinnamōmi.

Tincture of Cinnamon.

Take of Cinnamon bark bruised, three ounces,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Tinctūra Cinnamōmi Composĭta.

Compound Tincture of Cinnamon.

Take of Cinnamon bark bruised, six drachms,
Cardamom seeds bruised, three drachms,
Long pepper in powder,
Ginger root sliced, of each two drachms,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—This and the former are both stomachic and astringent. Dose, f℥j to f℥ij.

Tinctūra Digitālis.

Tincture of Foxglove.

Take of Foxglove leaves dried, four ounces,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Diuretic. Sedative. Dose, ♏x to ♏xl. gradually increased. If it occasion vomiting or purging, its diuretic powers will be lost, which may be prevented by the use of a small quantity of opium.

Tinctūra Gentiānæ Composĭta.

Compound Tincture of Gentian.

Take of Gentian root sliced, two ounces,
Orange peel dried, an ounce,
Cardamom seeds bruised, half an ounce,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Tonic. Stomachic. Dose, f℥j to f℥ij. It is most advantageously exhibited in combination with the Infusum Gentianæ compositum.

Tinctūra Guaiăci.

Tincture of Guaiacum.

Take of Guaiacum gum-resin in powder, half a pound,
Rectified spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Stimulant. Diaphoretic. Dose, f℥j to f℥iij. When mixed with water the guaiacum is precipitated; it should therefore be exhibited in mixture with some mucilage, or with yolk of egg.

Tinctūra Guaiăci Ammoniāta.

Ammoniated Tincture of Guaiacum.

Take of Guaiacum gum-resin in powder, four ounces,
Aromatic spirit of ammonia, a pint and half;
Macerate for fourteen days, and filter.

Medicinal uses. — Stimulant. Diaphoretic. Dose, f℥ss to f℥ij. This is a more powerful preparation than the simple tincture, on account of the presence of ammonia. Like the simple tincture it is decomposed by water, and must therefore be exhibited with similar precautions.

For incompatible substances, vide Tinctura Cinchonæ Ammoniata.

Tinctura Hellebŏri Nigri.

Tincture of Black Hellebore.

Take of Black hellebore root sliced, four ounces,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal use.—Emmenagogue. Dose, ♏xxx to f℥j.

Tinctūra Humŭli.

Tincture of Hops.

Take of Hops five ounces,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Sedative. Tonic. Dose, from f℥ss to f℥ij. Its powers are questionable.

Tinctūra Hyoscyămi.

Tincture of Henbane.

Take of Henbane leaves dried, four ounces,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal use.—Narcotic. Dose, f℥ss to f℥ij. It is stated to procure sleep without affecting the head, or producing the costiveness which opium is apt to do.

Tinctūra Jalăpæ.

Tincture of Jalap.

Take of Jalap root in powder, eight ounces,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal use.—Cathartic. Dose, f℥j to f℥ss. It is an efficient medicine, but is rarely administered except as an adjuvant to cathartic combinations.

Tinctūra Kino.

Tincture of Kino.

Take of Kino in powder, three ounces,
Rectified spirit two pints;
Macerate for fourteen days, and filter.

Medicinal use.—Astringent. Dose, f ʒj to f ʒij. It consists chiefly of tannin, and is said to be less efficacious than the Tinctura Catechu.

Tinctūra Myrrhæ.

Tincture of Myrrh.

Take of Myrrh bruised, four ounces,
Rectified spirit, three pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Tonic. Deobstruent. Dose, fʒss to fʒj. It is however rarely used internally; but as an external application to foul ulcers, and when diluted with water as a lotion for spongy gums. It is decomposed, and its resin precipitated, by mixture with water.

Tinctūra Opĭi.

Tincture of Opium.

Take of Hard Opium in powder, two ounces and a half,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Qualities.—This tincture is of a deep brownish red colour, and possesses the peculiar odour and taste of the opium itself. Its specific gravity I found to be 0.952, when prepared with proof spirit of sp. gr. 0·930, as directed in the Pharmacopœia; about xix minims contain one grain of opium; this was proved by boiling down the tincture, and also by determining the quantity of opium left undissolved. It will appear from what has already been stated, that proof spirit is a much better solvent of opium

than cold water; for the latter dissolves less than 3-7ths of the opium, whereas proof spirit, as I found in preparing the tincture, dissolves more than 2-3rds of it.

Incompatibles.—This tincture is decomposed by ammonia, potash, and soda, and their subcarbonates, morphia being precipitated; most metallic salts, and infusion of galls, also decompose it.

Medicinal use.—Narcotic. As xix minims contain one grain of opium, the quantity exhibited must depend upon that of the opium which it is intended to give. Its dose is generally stated to be from ♏x to ♏lx. It is given in preference to opium in substance, in cases of accident or of sudden and extreme pain; it is sometimes preferred to solid opium in chronic cases, on account of the facility with which the dose may be apportioned and varied according to circumstances. It is externally employed as an anodyne in lotions.

Tinctūra Rhēi.

Tincture of Rhubarb.

Take of Rhubarb root sliced, two ounces,
Cardamom seeds bruised, an ounce and a half,
Saffron two drachms,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Purgative. Stomachic. Dose, f℥ij to ℥iss.

Tinctūra Rhēi Compos̆ita.

Compound Tincture of Rhubarb.

Take of Rhubarb root sliced, two ounces,
Liquorice root bruised, half an ounce,
Ginger root sliced,
Saffron, of each two drachms,
Proof spirit a pint,
Water twelve fluidounces;
Macerate for fourteen days, and filter.

Medicinal uses, as the former, and in similar doses.

Tinctūra Scillæ.

Tincture of Squills.

Take of Squill root fresh dried, four ounces,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Expectorant. Diuretic. Dose, ♏x to ♏xxx.

Tinctūra Sennæ.

Tincture of Senna.

Take of Senna leaves, three ounces,
Carraway seeds bruised, three drachms,
Cardamom seeds bruised, a drachm,
Raisins stoned, four ounces,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Stomachic and purgative. Dose, f℥ij to f℥j.

Tinctūra Serpentarĭæ.

Tincture of Serpentary.

Take of Serpentary root, three ounces,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Tonic. Diaphoretic. Dose, fʒi to fʒiij.

Tinctūra Valeriānæ.

Tincture of Valerian.

Take of Valerian root four ounces,
Proof spirit two pints;
Macerate for fourteen days, and filter.

Medicinal use.—Antispasmodic. Dose, from fʒi to f℥iij. It is seldom employed except as an adjunct to the infusion of valerian.

Tinctūra Valeriānæ Ammoniāta.

Ammoniated Tincture of Valerian.

Take of Valerian root four ounces;
Aromatic spirit of ammonia two pints;
Macerate for fourteen days, and filter.

Medicinal use.—Antispasmodic. Dose, fʒi to fʒij. It is more powerful than the simple tincture, only on account of the ammonia which it contains. It is incompatible with acids; and with acidulous, metallic, and earthy salts.

Tinctūra Zingĭbĕris.

Tincture of Ginger.

Take of Ginger root sliced, two ounces,
Rectified spirit two pints;
Macerate for fourteen days, and filter.

Medicinal uses.—Stimulant. Carminative. Dose, fʒi to fʒij. It is useful in gout when it attacks the stomach, and in flatulent colic, and as a corrigent to griping purgatives.

ÆTHEREA.

PREPARATIONS OF ÆTHER.

Æther Sulphuricus.

Sulphuric Æther.

Take of Rectified spirit,
Sulphuric acid, of each, *by weight*, a pound and a half;

Pour the spirit into a glass retort, and gradually add the acid to it, frequently shaking them, and taking care that the temperature does not exceed 120°, until they are mixed. Then place the retort cautiously in a sand-bath, previously heated to 200°, so that the liquor may boil as quickly as possible, and the æther may pass over into a tubulated receiver, to which another receiver is adapted, and kept cold by ice or water. Let the liquor distil, until a heavier fluid begins to pass over and to appear under the æther at the bottom of the receiver. To the liquor which remains in the retort again pour twelve ounces of rectified spirit, that æther may distil in the same manner.

Æther Rectificātus.

Rectified Æther.

Take of Sulphuric æther fourteen fluidounces,
Fused potash half an ounce,
Distilled water eleven fluidounces;

First dissolve the potash in two ounces of the water, and then add the æther to it, shaking them well until they are mixed; then, at a temperature of about 200°, let twelve fluidounces of æther distil from a large retort into a cooled receiver; shake the distilled æther with nine fluidounces of water, and set them by, that the water may subside. Lastly, pour off the supernatant rectified æther, and keep it in a well-stopped vessel.

Process.—I have already mentioned that alkohol is a compound of carbon, oxygen, and hydrogen; and that, according to the analysis of Saussure, the proportions are very nearly

Carbon........	52·17	or 2 atoms..........	= 12
Oxygen	34·79	1 atom...........	= 8
Hydrogen	13·04	3 atoms..........	= 3
	100·00	Weight of its atom	= 23

When alkohol is heated with sulphuric acid, both undergo great change of properties; that suffered by the latter has not been sufficiently investigated, but it appears to have acquired qualities very different from those which it originally had. In its altered state it has been called sulphovinous acid, and suspected to be hyposulphuric acid mixed with ætherial oil.

It appears that the process of ætherification depends upon abstracting from alkohol one-half of its oxygen and one-sixth of hydrogen, which, it will be observed, are in the proportions required to form water: according to this, æther would be composed of

Carbon........	64·86	or 4 atoms..........	= 24
Oxygen.......	21·62	1 atom...........	= 8
Hydrogen	13·52	5 atoms..........	= 5
	100·00	Weight of its atom	= 37

The analysis which comes nearest to these proportions, is that given by Dr. Ure; and, for additional reasons for supposing that the formation of æther depends upon the loss by the alkohol of oxygen and hydrogen in the proportions stated, I refer the reader to Dr. Henry's Chemistry, vol. ii. p. 339.

In preparing the Æther Sulphuricus of the Pharmacopœia, I obtained, by using the proportions directed, f℥12 of product, fʒ 6 of which were the *heavier fluid* mentioned, f℥11¼ æther sulphuricus of sp. gr. 0·768. On adding the second portion of spirit, the quantity of æthereal product was nearly similar, but its sp. gr. was 0·807 instead of 0·768, showing that the power of the acid in producing æther was much diminished by the first operation. The process for procuring æther sulphuricus is only a part of that for obtaining æther rectificatus, and the products chiefly differ in the former containing alkohol, water, and sulphurous acid. These are intended to be separated by the action of the potash in the process for obtaining æther rectificatus, but it is better to use the *potassa fusa*, without any water. When this is put into æther sulphuricus, the water, and a large portion of the alkohol, having great affinity for it, readily dissolve it; and the æther floats on the solution, not having any affinity for the alkali.

Qualities.—Sulphuric æther, the æther rectificatus of the Pharmacopœia, is a transparent colourless fluid; its smell is pleasant and its taste pungent. It is extremely volatile, and during evaporation it occasions a great degree of cold. Under the usual atmospheric pressure æther boils at 96°, and *in vacuo* at a temperature much below that of freezing water. For medicinal purposes its sp. gr. should be at most 0·750, and even then it contains some alkohol, and it may be procured of sp. gr. 0·700. It is highly inflammable, so that its vapour readily takes fire on the approach of flame. It unites with alkohol in all proportions, but combines sparingly with water.

Officinal preparations.—Spiritus Ætheris Sulphurici, Spiritus Ætheris Sulphurici Compositus.

Medicinal uses.—Stimulant. Antispasmodic. Dose, fʒss to fʒij. On account of the cold which it produces during evaporation, it is a useful refrigerant applied to scalds and burns.

Olĕum Æthrĕum.

Æthereal Oil.

After the distillation of sulphuric æther, the heat being moderated, let the liquor again distil until a black froth arises; then immediately remove the retort from the fire. To the liquor which remains in the retort add water, that the oily part may float upon it. Remove this, and mix it with a sufficient quantity of lime-water to saturate the acid present, and shake them together. Lastly, remove the æthereal oil which has separated.

Process.—I have repeatedly tried to procure æthereal oil by this process, and also by varying it; but I have never succeeded, nor have my attempts to purchase it been more successful. What I prepared was æther mixed with sulphurous acid, and that which I purchased was yellow-coloured empyreumatic æther, containing neither oil nor sulphurous acid. Its sp. gr. was about 0·768: thirty-two measures of it yielded by distillation twenty-seven measures of æther of sp. gr. 0·747, and the residuum contained so much carbonaceous matter, that it readily decomposed sulphuric acid.

Spirĭtus Æthĕris Aromatĭcus.

Aromatic Spirit of Æther.

Take of Cinnamon bark bruised, three drachms,
Cardamom seeds in powder, a drachm and a half,
Long pepper in powder,
Ginger root sliced, of each a drachm,
Spirit of sulphuric æther a pint;

Macerate for fourteen days in a stopped glass vessel, and filter.

Medicinal uses.—Stimulant. Antispasmodic. Dose, f℥ss to f℥i.

Spirĭtus Æthĕris Nitrĭci.

Spirit of Nitric Æther.

Take of Rectified spirit two pints,
Nitric acid, *by weight*, three ounces;
Add the acid to the spirit gradually, and mix them, taking care that the temperature does not exceed 120°; then, with a gentle heat, distil twenty-four fluidounces.

Process.—When a mixture of alkohol and nitric acid is subjected to distillation, a portion of each is decomposed, and nitric æther is formed by the re-union of their elements; this rises in vapour with the undecomposed alkohol, and these, when condensed together, constitute the spiritus ætheris nitrici.

The exact nature and composition of nitric æther have not been satisfactorily ascertained; no doubt, however, exists of its being formed of a portion of each of the elements of the acid and spirit; the former consisting of oxygen and azote, and the latter of oxygen, hydrogen, and carbon.

M. Thenard states its composition to be as follows:

Oxygen........	48·52
Hydrogen......	8·54
Azote.........	14·49
Carbon........	28·45
	100·00

It is to be remembered, that the preparation directed in the Pharmacopœia, is a mixture of nitric æther and alkohol, in proportions which have not been determined.

Qualities.—This preparation is colourless, has a peculiar and rather fragrant æthereal odour; its taste is pungent and slightly acid. It is very inflammable, but not so much so as sulphuric æther; and being also less volatile, it does not occasion so great a degree of cold during evaporation. The specific gravity of spiritus ætheris nitrici should not exceed 0·834; but

when the distillation is carried on too far, the product is specifically heavier, high coloured, of a much less agreeable odour, and very acid.

Adulteration.—If the specific gravity exceeds 0·834, the excess may arise from the presence of water, of nitric acid, or from a mixture of them. If the acid be present in considerable quantity, it may be detected by the taste, by its acting strongly upon litmus paper, or by the effervescence of carbonic acid, when a crystal of subcarbonate of soda is dropped into it.

Medicinal uses.—Refrigerant. Diuretic. Dose, ♏x to ♏xl.

Spirĭtus Æthĕris Sulphurĭci.

Spirit of Sulphuric Æther.

Take of Sulphuric ether half a pint,
Rectified spirit a pint;
Mix.

Medicinal uses.—Similar to those of Æther Rectificatus. Dose, f℥i to f℥iij. It is rendered weaker than æther rectificatus, by the large quantity of rectified spirit with which it is diluted.

The specific gravity of this preparation I find to be about 0·816, when the æther and spirit which enter into its composition are of the proper quality.

Spirĭtus Æthĕris Sulphurĭci Composĭtus.

Compound Spirit of Sulphuric Æther.

Take of Spirit of sulphuric ether a pint,
Æthereal oil two fluidrachms;
Mix.

Medicinal uses.—Similar to those of the last preparation, and in the same doses. It follows, from what I have stated respecting oleum æthereum, that there can be little or no difference between the powers of this and the simple spirit.

WINES.

It has been already mentioned that the College have now substituted dilute spirit for wine in all those preparations which were formerly, and indeed are even now, termed *Vina*. This change has been decidedly disadvantageous with respect to vinum ferri; but whether any alteration of power or properties are induced in the other vinous preparations, I have not had an opportunity of determining, but I think this must be the case; for the following statement will show, that instead of using wine of a uniform degree of strength, dilute spirit of very different qualities is employed.

	Proof Spirit.		Water.
Vinum Ferri......	1 part	....	1½ parts
——— Alöes	1 do.	....	1 do.
——— Colchici ...	1 do.	....	2 do.
——— Ipecacuanhæ	1 do.	...	1⅔ do.
——— Opii	1 do.	....	1⅔ do.
——— Veratri	I do.	....	1½ do.

I do not mean to assert that the above proportions are not the most proper which could have been selected, but it appears to me that the preparations must possess different powers from those which they formerly had.

Vinum Alöes.

Wine of Aloes.

Take of Extract of spiked aloe eight ounces,
Canella bark two ounces,
Proof spirit,
Distilled water, of each, four pints;

Rub the extract into powder with white sand freed from impurities; rub the canella bark also into powder, and, having mixed these powders, pour the wine and the spirit upon them. Macerate for fourteen days, frequently shaking, and filter.

Medicinal uses.—Stomachic, in doses of fʒi to fʒij. Purgative, f℥i to f℥ij.

Vinum Colchĭci.

Wine of Meadow Saffron.

Take of Meadow saffron root fresh and sliced, a pound,
Proof spirit four fluidounces,
Distilled water eight fluidounces;

Macerate for fourteen days, and filter.

Medicinal uses.—Diuretic. Dose, from ♏xxx to fʒi. It is stated to be a specific in the gout, allaying the pain, and cutting short the paroxysm.

Meadow saffron is a well-known poisonous plant; its power resides in a peculiar vegetable alkali, which is similar to that occurring in white hellebore, and termed *veratria.*—Vide Vinum Veratri.

Vinum Ipecacŭanhæ.

Wine of Ipecacuanha.

Take of Ipecacuanha root bruised, two ounces,
Proof spirit twelve fluidounces,
Distilled water twenty fluidounces ;
Macerate for fourteen days, and filter.

Medicinal uses.—Diaphoretic: dose, ♏xx to ♏xl. Emetic: dose, f℥ij to f℥iv. It is as efficacious an emetic as Vinum Antimonii Tartarizati, and, being milder in its operation, is better adapted for infants, a teaspoonful or f℥ss being administered every ten or fifteen minutes till it operates.

The active property of ipecacuanha is a peculiar substance, to which the name of *Emetin* has been given. The root contains 16 per cent. of it, mixed with woody fibre, starch, gum, &c. Mr. A. T. Thomson (Dispensatory, p. 817) states, that a pint of sherry takes up 100 grains of ipecacuanha ; but the quantity dissolved by the spirit now ordered has not, that I know of, been ascertained ; as, however, it contains at least twice as much alkohol as the wine formerly directed to be used, the present preparation may be considerably stronger, unless the wine dissolved the whole of the emetin contained in the root, for this principle is insoluble in water, but soluble in alkohol, and probably in a greater degree when it is strong than dilute. On the other hand, emetin is soluble in acids, and the presence of a small quantity of acetic acid and of bitartrate of potash in the wine, may counterbalance the deficiency of strength in its alkohol. Emetin is insoluble in æther, but is dissolved by most acids. The solutions are not decomposed by tartarized antimony, but they are incompatible with salts of lead and mercury, and infusion of galls.

According to the analysis of MM. Dumas and Pelletier, emetin consists of

Carbon	64·57
Azote	4·30
Hydrogen . .	7·77
Oxygen	22·95
	99·59

Vinum Opĭi.

Wine of Opium.

Take of Extract of opium an ounce,
Cinnamon bark bruised,
Cloves bruised, of each a drachm,
Proof spirit six fluidounces,
Distilled water ten fluidounces ;
Macerate for eight days, and filter.

Medicinal use.—Narcotic. Dose, ♏x to f℥i.

This preparation differs from the tinctura opii, not only in containing aromatics, but in some other respects. The spirit of the vinum opii is weaker than that of the tincture in the proportion of six to sixteen : the opium is purified, and only four-fifths of the quantity of that contained in the tincture. Various circumstances render it difficult to form an estimate of the comparative powers of these preparations ; they probably differ but little, for respectable authorities agree in representing their doses as similar. The vinum opii (or rather the compound tincture of opium) must be less disagreeable to most persons, than the tincture, not only on account of the aromatics which it contains, but because the opium during purification loses its peculiar and disagreeable smell and taste.

Vinum Verātri.

Wine of White Hellebore.

Take of White hellebore root sliced, eight ounces,
Proof spirit a pint,
Distilled water a pint and a half ;
Macerate for fourteen days, and filter.

Medicinal uses.—Emetic and Cathartic, acting usually with considerable violence. Dose, ♏v to ♏x.

The peculiar and poisonous quality of hellebore is an alkaline body, which is called *Veratria*, and which I have already stated exists in meadow saffron.

For the method of preparing it, I refer to Dr. Henry's Elements of Chemistry, vol. ii. p. 191, and he gives nearly the following account of its properties:—It is white, pulverulent, and destitute of smell; but when inhaled into the nostrils, it produces violent and dangerous sneezing, even when the quantity is too small to be weighed. Its taste is acrid in the highest degree, but without any bitterness. In very minute quantity it produces dreadful sickness and vomiting, and a few grains would probably prove fatal.

It is very slightly soluble in water; when boiling, it takes up only 1-1000th of its weight, but this gives it an acrid taste. It is very soluble in alkohol. It possesses the alkaline properties of restoring the blue colour of reddened litmus paper, and saturates acids, forming salts with them which do not crystallize, and the elements of which are so weakly combined as to be separated by the action of water: it exists in the root combined with gallic acid, forming gallate of veratria.

MM. Dumas and Pelletier state its composition to be as follows:

Carbon	66·75
Azote	5·04
Hydrogen	8·54
Oxygen	19·60
	99·93

PREPARATIONS OF VINEGAR.

Acētum Colchĭci.

Vinegar of Meadow Saffron.

Take of Meadow saffron root fresh and sliced, an ounce,
Diluted acetic acid a pint,
Proof spirit a fluidounce;

Macerate the meadow saffron root with the diluted acetic acid in a close glass vessel for three days; then press out the liquor, and set it by that the dregs may subside; lastly, add the spirit to the clear liquor.

Medicinal uses.—Diuretic. Dose, fʒss to fʒi. in any bland fluid. Like the Vinum Colchici, it is employed in the gout.

Acētum Scillæ.

Vinegar of Squill.

Take of Squill root fresh dried, a pound,
Diluted acetic acid six pints,
Proof spirit half a pint;

Macerate the squill root with the acid with a gentle heat, in a close glass vessel, for twenty-four hours; then press out the liquor, and set it by that the dregs may subside; lastly, add the spirit to the clear liquor.

Medicinal uses.—Expectorant and Diuretic. Dose, f℥ss to f℥ij. in any aromatic distilled water.

It is to be remembered, that alkalies and their carbonates are incompatible with this and the last preparation.

PREPARATIONS OF HONEY.

Mel Despumātum.

Clarified Honey.

Melt the honey by the aid of a water-bath, then take off the scum.

Honey which has undergone this process is less agreeable to the smell and taste than crude honey. It is said not to ferment so readily, and to be less apt to gripe. It is seldom used except in officinal preparations.

Mel Borācis.

Honey of Borax.

Take of Subborate of soda in powder, a drachm,
Clarified honey an ounce ;
Mix.

Medicinal uses.—Detergent and cooling in aphthous affections of the tongue and fauces.

Mel Rosæ.

Honey of Roses.

Take of Red rose petals dried, four ounces,
Boiling water three pints,
Clarified honey five pounds;
Macerate the rose petals in the water for six hours, and strain; then add the honey to the strained liquor, and by means of a water-bath, boil it down to a proper consistence.

Medicinal use.—As an adjunct to detergent and astringent gargles.

Oxymel Simplex.

Simple Oxymel.

Take of Clarified honey three pounds,
Diluted acetic acid two pints;
Boil them down in a glass vessel over a slow fire to a proper consistence.

Medicinal uses..—Detergent; principally used as the basis of gargles and expectorant remedies. Dose, f℥i to f℥i.

Oxymel Scillæ.

Oxymel of Squill.

Take of Clarified honey three pounds,
Vinegar of squill two pints ;
Boil them down in a glass vessel over a slow fire to a proper consistence.

Medicinal use.—Expectorant. Dose, f℥ss to f℥ij. in chronic coughs. In large doses it is emetic.

SYRUPS.

Syrups are strong solutions of sugar in water, generally coloured or flavoured with vegetable matter; and sometimes, but more rarely, they are active medicines ; it is particularly requisite that they should be kept in a cool place, or otherwise acetic acid will be generated by fermentation, and this may interfere with medicine, the virtues of which it is employed to increase, or whose disagreeable flavour it is intended to disguise.

Syrups are to be kept in a place where the temperature never exceeds 55°.

Syrŭpus Althææ.

Syrup of Marshmallow.

Take of Marshmallow root fresh and bruised, half a pound,
Refined sugar two pounds,
Water four pints;

Boil down the water with the marshmallow root to one half, and press out the liquor when cold. Set it by for twenty-four hours that the dregs may subside; then pour off the liquor, and, having added the sugar, boil them down to a proper consistence.

This syrup contains the mucilaginous matter of the marshmallow, and is used as a demulcent. It is apt to spoil by fermentation, and does not possess any active property.

Syrŭpus Aurantiōrum.

Syrup of Oranges.

Take of Fresh orange peel two ounces,
Boiling water a pint,
Refined sugar three pounds;

Macerate the orange peel in the water for twelve hours in a covered vessel; then pour off the liquor, and add the sugar to it.

This syrup is employed merely on account of its grateful aromatic flavour.

Syrūpus Croci.

Syrup of Saffron.

Take of Saffron an ounce,
Boiling water a pint,
Refined sugar two pounds and a half.

Macerate the saffron in the water for twelve hours in a covered vessel; then strain the liquor, and add the sugar.

It is used merely on account of its fine colour.

Syrūpus Limōnum.

Syrup of Lemons.

Take of Lemon juice strained, a pint,
Refined sugar two pounds;

Dissolve the sugar in the lemon juice in the manner directed for simple syrup.

This is a pleasant syrup; but it must be remembered, that its acidity prevents its being employed in any composition that contains alkalies, alkaline earths, or their carbonates.

Syrūpus Mori.

Syrup of Mulberries.

Take of Mulberry juice strained a pint,
Refined sugar two pounds;
Dissolve the sugar in the mulberry juice, in the manner directed for simple syrup.

This is used for the same purposes as the former, and it has the advantage of a fine colour.

Syrūpus Papavĕris.

Syrup of Poppies.

Take of Capsules of white poppy dried and bruised, and freed from the seeds, fourteen ounces,
Refined sugar two pounds,
Boiling water two gallons and a half;
Macerate the capsules in the water for twenty-four hours, then, by means of a water-bath, boil it down to one gallon, and strongly press out the liquor. Boil down the strained liquor again to two pints and, while it is hot, strain it. Set it by for twelve hours, that the dregs may subside; then boil down the clear liquor to a pint, and add the sugar in the manner directed for simple syrup.

Medicinal uses.—Anodyne. Narcotic. Dose, f ʒj to f ℥j. This syrup is very apt to ferment, and hence the necessity of keeping it cool. It is principally used for children.

Syrūpus Rhamni.

Syrup of Buckthorn.

Take of the fresh juice of buckthorn berries four pints,
Ginger root sliced,
Pimenta berries in powder, of each half an ounce,
Refined sugar three pounds and a half;

Set by the juice for three days that the dregs may subside, and strain. To a pint of the clear juice add the ginger root and pimenta berries; then macerate with a gentle heat for four hours and strain; boil down the remaining juice to one pint and a half; mix the liquors; and add the sugar in the manner directed for simple syrup.

Medicinal use.—Cathartic. Dose, f℥ss to f℥j. It is an unpleasant remedy both to the taste and in its operation, and is but little used.

Syrūpus Rhœădos.

Syrup of Red Poppy.

Take of Fresh red poppy petals a pound,
Boiling water a pint and two fluidounces,
Refined sugar two pounds and a half;

To the water heated by a water-bath add gradually the poppy petals, frequently stirring them; next, having removed the vessel, macerate for twelve hours; then press out the liquor, and set it by that the dregs may subside; lastly, add the sugar in the manner directed for simple syrup.

This syrup is of a fine red colour, and is used only on that account.

Syrŭpus Rosæ.

Syrup of Roses.

Take of Damask rose petals dried, seven ounces,
Refined sugar six pounds,
Boiling water four pints;

Macerate the rose petals in the water for twelve hours, and strain; evaporate the strained liquor by means of a water-bath to two pints and a half; then add the sugar in the manner directed for simple syrup.

Medicinal properties.—Purgative, but weakly so; it is sometimes given to infants. Dose, f ʒ ij to f ℥ j.

Syrŭpus Sarsăpărillæ.

Syrup of Sarsaparilla.

Take of Sarsaparilla root sliced, a pound,
Boiling water a gallon,
Refined sugar a pound;

Macerate the root in the water for twenty-four hours; then boil down to four pints, and strain the liquor while it is hot; lastly, add the sugar, and evaporate to a proper consistence.

This is employed as an adjunct to the decoction of Sarsaparilla.

Syrūpus Sennæ.

Syrup of Senna.

Take of Senna leaves two ounces,
Fennel seeds bruised, an ounce,
Manna three ounces,
Refined sugar a pound,
Boiling water a pint;

Macerate the senna leaves and fennel seeds in the water with a gentle heat for an hour. Strain the liquor, and mix with it the manna and the sugar; then boil down to a proper consistence.

This is a purgative syrup intended for children. Dose, f℥ij to f℥iv.

Syrūpus Simplex.

Simple Syrup.

Take of Refined sugar two pounds and a half,
Water a pint;

Dissolve the sugar in the water by means of a water-bath; and set the solution aside for twenty-four hours; then take off the scum, and, if there be any dregs, pour off the clear liquor from them.

This syrup is, of course, intended to impart mere sweetness, without colour or flavour.

Syrūpus Tolutānus.

Syrup of Tolu.

Take of Balsam of Tolu an ounce,
Boiling water a pint,
Refined sugar two pounds;
Boil the balsam in the water for half an hour in a covered vessel, frequently stirring them, and strain the liquor when it is cold; then add the sugar, in the manner directed for simple syrup.

It is employed merely to give a pleasant flavour to draughts and mixtures.

Syrūpus Zingibĕris.

Syrup of Ginger.

Take of Ginger root sliced, two ounces,
Boiling water a pint,
Refined sugar two pounds;
Macerate the ginger root in the water for four hours, and strain; then add the sugar in the manner directed for simple syrup.

This syrup is impregnated with the flavour and warmth of the ginger, and is a useful adjunct to bitter infusions and griping purgatives.

CONFECTIONS.

If Confections, when long kept, have become hard, they are to be moistened with water, so that their proper consistence may be restored.

Confectĭo Amygdalārum.

Confection of Almonds.

Take of Sweet almonds an ounce,
Gum arabic in powder, a drachm,
Refined sugar half an ounce;
Having first macerated the almonds in water and then removed their external coat, pound all the ingredients together, until they are thoroughly incorporated.

This preparation is used as affording an expeditious mode of preparing the Mistura Amygdalarum.

Confectĭo Aromatĭca.

Aromatic Confection.

Take of Cinnamon bark,
Nutmegs, of each two ounces,
Cloves an ounce,
Cardamom seeds half an ounce,
Saffron dried, two ounces,
Prepared shells sixteen ounces,
Refined sugar in powder, two pounds,
Water a pint;

Rub the dry ingredients together to a very fine powder; then add the water gradually, and mix until they are thoroughly incorporated.

Medicinal uses.—Stimulant. Cordial. Dose, gr. xx to ʒj. or more. It is incompatible with acids, acidulous salts, and metallic solutions, on account of the carbonate of lime which it contains.

Confectĭo Aurantiōrum.

Confection of Orange Peel.

Take of the outer fresh rind of oranges, separated by rasping, a pound,
Refined sugar three pounds;

Bruise the rind with a wooden pestle in a stone mortar; then, having added the sugar, rub them together until they are thoroughly incorporated.

This confection is a pleasant vehicle for the exhibition of tonic powders, and for making up electuaries.

Confectĭo Cassĭæ.

Confection of Cassia.

Take of Fresh Cassia pulp half a pound,
Manna two ounces,
Tamarind pulp an ounce,
Syrup of roses half a pint;

Bruise the manna, and dissolve it in the syrup by means a water-bath; then mix in the pulps, and evaporate the moisture till the confection acquires a proper consistence.

This confection is purgative in doses of ʒj to ℥j.; it is but little used.

Confectĭo Opĭi.

Confection of Opium.

Take of Hard Opium in powder, six drachms,
Long pepper an ounce,
Ginger root two ounces,
Carraway seeds three ounces,
Tragacanth powdered, two drachms,
Syrup a pint;

Rub the opium with the syrup, made hot; then add the rest of the ingredients in powder, and mix.

Medicinal properties.—Narcotic. Stimulant. Dose, gr. x to gr. xxx. One grain of opium is combined in about 36 grains of this confection.

Confectĭo Pipĕris Nigri.

Confection of Black Pepper.

Take of Black pepper,
Elecampane, of each a pound,
Fennel seeds three pounds,
Honey,
Refined sugar, of each two pounds;

Rub the dry ingredients together, to a very fine powder; then, having added the honey, rub them until they are thoroughly incorporated.

Medicinal uses.—This preparation is now first introduced into the Pharmacopœia; it is probably intended as a substitute for Ward's Paste for Piles, &c. Dose, from ʒj to ʒij. With

respect to Ward's paste, Dr. Paris observes, that "it is principally useful in those cases attended with considerable debility, in leucophlegmatic habits, and when piles arise from a deficient secretion in the rectum;" in cases attended with inflammation it does harm.

Confectĭo Rosæ Canīnæ.

Confection of the Dog Rose (Hips).

Take of Dog rose pulp a pound,
Refined sugar, in powder, twenty ounces;
By means of a water-bath, expose the pulp to a gentle heat; then add the sugar, gradually, and rub them together until they are thoroughly incorporated.

This is principally employed as an agreeable vehicle for making up more active medicines into pills and electuaries.

Confectĭo Rosæ Gallĭcæ.

Confection of the Red Rose.

Take of Red rose petals before they unfold, and without their claws, a pound,
Refined sugar three pounds;
Bruise the petals in a stone mortar, then, having added the sugar, rub them together until they are thoroughly incorporated.

This confection is employed for the same purposes as the last.

Confectĭo Rūtæ.

Confection of Rue.

Take of Rue leaves dried,
Carraway seeds,
Bay berries, of each an ounce and a half,
Sagapenum half an ounce,
Black pepper two drachms,
Clarified honey sixteen ounces;

Rub the dry ingredients together to a very fine powder; then having added the honey, mix them.

This confection is used as an antispasmodic in enemas only.

Confectĭo Scammonĕæ.

Confection of Scammony.

Take of Scammony gum-resin in powder, an ounce and a half,
Cloves bruised,
Ginger root in powder, of each six drachms,
Oil of carraway half a fluidrachm,
Syrup of roses a sufficient quantity;

Rub the dry ingredients together, to a very fine powder; then rub this again with the syrup gradually: lastly, having added the oil of carraway, mix them.

This is a stimulating cathartic, and may be given in the dose of ʒss to ʒj. It is but seldom used.

Confectio Sennæ.

Confection of Senna.

Take of Senna leaves eight ounces,
Figs a pound,
Tamarind pulp,
Cassia pulp,
Pulp of prunes, of each half a pound,
Coriander seeds four ounces,
Liquorice root three ounces,
Refined sugar two pounds and a half;

Rub the senna leaves with the coriander seeds, and by a sieve separate ten ounces of the mixed powder. Boil down the residue with the figs and the liquorice root in four pints of water, to one half; then press out the liquor and strain it. Evaporate this strained liquor, in a water-bath, until the whole is reduced to a pint and a half; then add the sugar to form a syrup. Lastly, rub the pulps gradually with the syrup, and having thrown in the sifted powder, mix the whole.

This is much employed as a laxative, but is generally very badly prepared, containing neither senna nor cassia, and sold for one-third the price which the genuine preparation costs. Dose, ʒij or more.

POWDERS.

Pulvis Alöes Compositus.

Compound Powder of Aloes.

Take of Extract of spiked aloe an ounce and a half,
Guaiacum gum-resin an ounce,
Compound powder of cinnamon half an ounce;
Rub the extract of aloe and the guaiacum gum-resin separately to powder; then mix them with the compound powder of cinnamon.

This powder is cathartic and sudorific. Dose; gr. x to gr. xx. It is seldom employed.

Pulvis Cinnamōmi Compositus.

Compound Powder of Cinnamon.

Take of Cinnamon bark two ounces,
Cardamom seeds an ounce and a half,
Ginger root an ounce,
Long pepper half an ounce;
Rub them together, so as to form a very fine powder.

This preparation is stimulant and carminative. Dose, gr. v to gr. x. in the form of bolus, or mixed with water. It is generally employed to give warmth to more active remedies.

Pulvis Contrajervæ Compositus.

Compound Powder of Contrajerva.

Take of Contrajerva root in powder, five ounces,
Prepared shells a pound and a half;
Mix.

This powder is not much employed. Dose, as a diaphoretic gr. xv to xl. Acids and acidulous salts are incompatible with it, on account of the carbonate of lime which enters into its composition.

Pulvis Cornu Usti cum Opio.

Powder of Burnt Hartshorn with Opium.

Take of Hard opium in powder, a drachm,
Hartshorn, burnt and prepared, an ounce,
Cochineal in powder, a drachm;
Mix.

Narcotic. Gr. x contain one of opium. The burnt horn is employed merely to divide the opium, and the cochineal to colour the mixture.

Pulvis Cretæ Compositus.

Compound Powder of Chalk.

Take of Prepared chalk half a pound,
Cinnamon bark four ounces,
Tormentil root,
Gum arabic, of each three ounces,
Long pepper half an ounce;
Rub them separately to very fine powder, and then mix.

Astringent. Dose, gr. v to gr. xxx.

Pulvis Cretæ Compositus cum Opio.

Compound Powder of Chalk with Opium.

Take of Compound powder of chalk six ounces and a half,
Hard opium in powder, four scruples;
Mix.

Astringent. Anodyne. Dose, gr. v to gr. xxx. Forty grains contain one grain of opium. This and the former preparation, on account of the carbonate of lime which they contain, are incompatible with acids and acidulous salts.

Pulvis Ipecacuanhæ Composĭtus.

Compound Powder of Ipecacuanha.

Take of Ipecacuanha root in powder,
Hard opium in powder, of each a drachm,
Sulphate of potash in powder, an ounce;
Mix.

This powder has been long employed as a sudorific, under the name of Dover's Powder. The sulphate of potash is used merely to divide the more active ingredients. In doses of gr. v to gr. xx. it acts as a powerful sudorific; it may be given diffused in a mucilaginous fluid, or in the form of bolus. Ten grains contain one grain of opium.

Pulvis Kino Composĭtus.

Compound Powder of Kino.

Take of Kino fifteen drachms,
Cinnamon bark half an ounce,
Hard opium a drachm;
Rub them separately to very fine powder; then mix.

Astringent. Dose, gr. v to gr. xx.

Pulvis Scammoneæ Compositus.

Compound Powder of Scammony.

Take of Scammony gum-resin,
Hard extract of jalap, of each two ounces,
Ginger root half an ounce;
Rub them separately to very fine powder; then mix.

Cathartic. Dose, gr. v to gr. xx.

Pulvis Sennæ Compositus.

Compound Powder of Senna.

Take of Senna leaves,
Supertartrate of potash, of each two ounces,
Scammony gum-resin half an ounce,
Ginger root two drachms;
Rub the scammony gum-resin separately, and the rest together, to a very fine powder; then mix.

Cathartic. Dose, gr. xx to ʒi.

Pulvis Tragacanthæ Composĭtus.

Compound Powder of Tragacanth.

Take of Tragacanth in powder,
Gum arabic in powder,
Starch, of each an ounce and a half,
Refined sugar three ounces;
Rub the starch and sugar together to powder; then having added the tragacanth and gum arabic, mix them all.

Demulcent. Dose, gr. x to ʒi.

PILLS.

Pilŭlæ Alöes Composĭtæ.

Compound Pills of Aloes.

Take of Extract of spiked aloe in powder, an ounce,
Extract of gentian half an ounce,
Oil of carraway forty minims,
Simple syrup a sufficient quantity;
Beat them together, until the mass is uniform.

Purgative. Stomachic, in habitual costiveness. Dose, gr. x to gr. xx.

Pilŭlæ Alöes cum Myrrha.

Aloes Pills with Myrrh.

Take of Extract of spiked aloe two ounces,
Saffron,
Myrrh, of each an ounce,
Simple syrup a sufficient quantity;
Rub the extract and the myrrh separately to powder; then beat the whole together until the mass is uniform.

This preparation is commonly called Pilulæ Rufi, and has been very long in use. Dose, gr. x to gr. xx. as a stimulant and cathartic.

Pilŭlæ Cambogĭæ Composĭtæ.

Compound Camboge Pills.

Take of Camboge in powder, a drachm,
Extract of spiked aloe in powder, a drachm and a half,
Ginger in powder, half a drachm,
Soap two drachms;
Mix the powders together; then, having added the soap, beat the whole together until the mass is uniform.

Cathartic. Dose, gr. x to gr. xx.

Pilŭlæ Ferri Composĭtæ.

Compound Pills of Iron.

Take of Myrrh in powder, two drachms,
Subcarbonate of soda,
Sulphate of iron,
Sugar, of each a drachm;

Rub the myrrh with the subcarbonate of soda; then, having added the sulphate of iron, rub them again; lastly, beat the whole until the mass is uniform.

In this preparation the sulphate of iron is decomposed by the subcarbonate of soda, precisely in the same manner, and with the production of compounds similar to those which result during the preparation of Ferri Subcarbonas. While, however, the sulphate of soda is washed away from the subcarbonate of iron, it remains with it in preparing the pills, but the quantity is so extremely small as to be quite unimportant. Nearly the same precautions as those which have been given with respect to the Mistura Ferri Composita, will apply to this preparation; viz. that the pills should be prepared only at the moment in which they are wanted, for the protocarbonate of iron at first formed is very readily converted into peroxide by absorbing the oxygen of the atmosphere, by which its solubility and power are diminished. The dose is from gr. x to gr. xx. two or three times a day, in the same cases as the Mistura Ferri Composita.

One grain of protoxide of iron, is contained in about gr. xx of this preparation, and also in f ℥ iss of the Mistura Ferri composita.

Pilŭlæ Galbăni Composĭtæ.

Compound Pills of Galbanum.

Take of Galbanum gum-resin an ounce,
Myrrh,
Sagapenum, of each an ounce and a half,
Assafœtida gum-resin half an ounce,
Simple syrup a sufficient quantity;
Beat them together till the mass is uniform.

Antispasmodic and Emmenagogue. Dose, gr. x to gr. xx.

Pilŭlæ Hydrargÿri.

Pills of Mercury.

Take of Purified mercury, two drachms,
Confection of red roses three drachms,
Liquorice root in powder, a drachm;
Rub the mercury with the confection, until globules are no longer visible: then, having added the liquorice root, beat the whole together until the mass is uniform.

Process.—When mercury undergoes trituration with conserve of roses, it is either very finely divided, or converted into oxide. Different opinions have been and are still entertained on this subject, and it appears to me that fresh experiments are wanting to elucidate it. It has been asserted that the mercurial pill and ointment both contain the black or protoxide of mercury; it is however possible, as I have already hinted, when treating of hydrargyrum cum creta, that a suboxide of mercury may exist, and form the base of these preparations.

Medicinal uses.—Alterative. Antisyphilitic. Dose, gr. iv to gr. vi. If it occasion any action on the bowels, it may be conjoined with opium; or a few grains of rhubarb will enable the intestines to resist the mercurial irritation. In cases in which the form of pill is objectionable, it may be exhibited suspended in mucilage. Three grains of the pill contain one grain of mercury.

Pilŭlæ Hydrargȳri Submuriātis Composĭtæ.

Compound Pills of Submuriate of Mercury.

Take of Submuriate of mercury,
Precipitated sulphuret of antimony, of each two drachms,
Guaiacum gum-resin in powder, half an ounce,
Rectified spirit half a drachm;

Rub the submuriate of mercury with the precipitated sulphuret of antimony, then with the guaiacum gum-resin, and add the spirit, to give proper consistence.

Medicinal uses.—Alterative. Dose, gr. v to gr. x. This pill is much employed in cutaneous eruptions, and in secondary syphilitic symptoms, particularly when affecting the skin. It is commonly known by the name of *Plummer's Pill.*

Pilŭlæ Sapōnis cum Opĭo.

Pills of Soap with Opium.

Take of Hard opium in powder, half an ounce,
Hard soap two ounces;
Beat them together, until the mass is uniform.

Medicinal uses.—Anodyne. Narcotic. Dose, gr. iij to gr. x. Five grains contain one grain of opium.

Pilŭlæ Scillæ Composĭtæ.

Compound Pills of Squill.

Take of Squill root fresh dried and powdered, a drachm,
Ginger root in powder,
Hard soap, of each three drachms,
Ammoniacum in powder, two drachms;
Mix the powders together; then beat them with the soap, and add as much simple syrup as may be sufficient to give proper consistence.

Medicinal uses.—Expectorant. Diuretic. Dose, gr. x to gr. xx.

PREPARATIONS FROM ANIMALS.

Adeps Præparāta.

Prepared Lard.

Cut the lard into small pieces; then having melted it over a slow fire, press it through a linen cloth.

This might have been introduced into the Materia Medica, as it is always to be met with in the shops.

Cornu Ustum.

Burnt Hartshorn.

Burn pieces of hartshorn in an open fire until they are thoroughly white; then powder, and prepare them in the manner directed for chalk.

This is an insoluble, inert compound, consisting almost entirely of phosphate of lime.

Sevum Præparātum.

Prepared Suet.

Cut the suet into small pieces; then having melted it over a slow fire, press it through a linen cloth.

Spongĭa Usta.

Burnt Sponge.

Cut the sponge into small pieces, and beat it so that it may be separated from any adhering foreign matter; then burn it in a covered iron vessel until it becomes black and friable; lastly rub it to a very fine powder.

Medicinal uses.—Tonic. Deobstruent. Antacid. Dose, ʒj to ʒiij. in the form of an electuary. It consists of charcoal, mixed with small portions of phosphate and carbonate of lime, and with subcarbonate of soda; it has been asserted that it contains *iodine*, and that its efficacy in bronchocele is owing to it.

Testæ Præparātæ.

Prepared Shells.

Having first freed the shells from all impurities, wash them with boiling water; then prepare them in the manner directed for chalk.

Shell is a much harder carbonate of lime than chalk, and is consequently more difficult of reduction to a fine powder; it does not appear to possess any good quality which is not to be found in chalk.

PLASTERS.

Emplastrum Ammoniăci.

Plaster of Ammoniacum.

Take of Purified Ammoniacum, five ounces,
Diluted acetic acid half a pint;

Dissolve the ammoniacum in the acid; then evaporate the solution in an iron vessel, by means of a water-bath, constantly stirring it until it has a proper consistence.

Medicinal uses.—Stimulant and discutient, applied to white swellings and scrophulous tumours, &c.

Emplastrum Ammoniăci cum Hydrargȳro.

Plaster of Ammoniacum with Mercury.

Take of Purified ammoniacum, a pound,
Purified mercury three ounces,
Sulphurated oil a fluidrachm;

Rub the mercury with the sulphurated oil until globules are no longer visible; then, gradually, add the ammoniacum melted, and mix them all.

Medicinal uses.—Similar to the former, but more powerful, especially in venereal nodes.

Emplastrum Cantharidis.

Plaster of Cantharides.

Take of Cantharides, in very fine powder, a pound,
Wax plaster a pound and a half,
Prepared lard half a pound;

The plaster and the lard being melted together, and removed from the fire, a little before they become solid, sprinkle in the cantharides, and mix them all.

In spreading this plaster great care should be taken that heat be not employed, or that it be barely sufficient to soften the plaster; a high temperature decomposes the animal matter, and totally destroys its efficacy.

Emplastrum Ceræ.

Wax Plaster.

Take of Yellow wax,
Prepared suet, of each three pounds,
Yellow resin a pound;

Melt them together, and strain.

This plaster is principally used as an ingredient in the preceding.

Emplastrum Cumīni.

Plaster of Cumin Seeds.

Take of Cumin seeds,
Carraway seeds,
Bay berries, of each three ounces,
Burgundy pitch three pounds,
Yellow wax three ounces,
Olive oil,
Water, of each a fluidounce and a half;

To the pitch and wax melted together, add the dry ingredients powdered, the olive oil and the water; then boil down to a proper consistence.

Medicinal uses.—Stimulant and discutient.

Emplastrum Galbăni Composĭtum.

Compound Galbanum Plaster.

Take of Purified galbanum gum-resin eight ounces,
Lead plaster three pounds,
Common turpentine ten drachms,
Resin of the spruce fir, in powder, three ounces;

To the galbanum gum-resin and turpentine melted together, add first the resin of the spruce fir, then the lead plaster melted with a slow fire, and mix them all.

Medicinal uses.—Stimulant. Discutient. It is more powerful than the preceding, and is said to be particularly serviceable in cases of indolent glandular enlargements of a strumous character.

Emplastrum Hydrargўri.

Plaster of Mercury.

Take of Purified mercury three ounces,
Sulphurated oil a fluidrachm,
Lead plaster a pound;

Rub the mercury with the sulphurated oil until globules are no longer visible; then add, gradually, the lead plaster, melted, and mix them all.

Medicinal uses.—Alterative. Discutient. It is less powerful than the Emplastrum Ammoniaci cum Hydrargyro.

Emplastrum Opĭi.

Plaster of Opium.

Take of Hard opium in powder, half an ounce,
Resin of the spruce fir, in powder, three ounces;
Lead plaster a pound,
Water half a pint;

To the melted plaster add the resin of the spruce fir, the opium, and the water, and with a slow fire boil down, until the whole unite into the consistence of a plaster.

Medicinal uses.—Anodyne; but its powers are questionable.

Emplastrum Picis Compositum.

Compound Plaster of Pitch.

Take of Burgundy pitch two pounds,
Resin of the spruce fir a pound,
Yellow resin,
Yellow wax, of each four ounces,
Expressed oil of nutmegs an ounce,
Olive oil,
Water, of each two fluidounces;

To the pitch, resin, and wax melted together, add first the resin of the spruce fir, then the oil of nutmegs, the olive oil, and the water. Lastly, mix them all, and boil down to a proper consistence.

Medicinal uses.—Stimulant. Rubefacient in pulmonary complaints; but it frequently produces too great a degree of irritation.

Emplastrum Plumbi.

Plaster of Lead.

Take of Semi-vitreous oxide of lead in very fine powder, five pounds,
Olive oil a gallon,
Water two pints;

Boil them together over a slow fire, constantly stirring them, until the oil and oxide of lead unite into the consistence of a plaster; but it will be proper to add a little boiling water, if nearly the whole of that used in the beginning, should be consumed before the end of the boiling.

Medicinal uses.—It is largely employed as the basis of many other plasters, and is a common application to excoriations, and for retaining the edges of fresh cut wounds in a state of apposition, and defending them from the air.

Emplastrum Resīnæ.

Plaster of Resin.

Take of Yellow resin half a pound,
Lead plaster three pounds;

To the lead plaster melted over a slow fire, add the resin in powder, and mix.

Medicinal uses.—Stimulant. Defensive.

Emplastrum Sapōnis.

Plaster of Soap.

Take of Hard soap sliced, half a pound,
Lead plaster three pounds;

Mix the soap with the melted plaster; then boil them down to a proper consistence.

Medicinal use.—Discutient.

CERATES.

Cerātum Calamīnæ.

Cerate of Calamine.

Take of Prepared calamine,
Yellow wax, of each half a pound,
Olive oil a pint;

Mix the oil with the melted wax; then remove them from the fire, and as soon as they begin to thicken, add the calamine, and stir constantly, until they are cold.

This cerate, well known by the name of Turner's cerate, is used as a dressing to excoriations and ulcers, and to burns after the inflammation has subsided.

Cerātum Cantharĭdis.

Cerate of Cantharides.

Take of Cantharides, in very fine powder, a drachm,
Spermaceti cerate, six drachms;

To the cerate softened by the fire, add the cantharides and mix.

This cerate is employed to promote a discharge from a blistered surface; it generally answers the purpose, without exciting much irritation; but sometimes occasions strangury, and produces swelling of the lymphatics, and general irritation.

Cerātum Cetacĕi.

Cerate of Spermaceti.

Take of Spermaceti half an ounce,
White wax two ounces,
Olive oil four fluidounces;

To the spermaceti and wax melted together, add the oil, and stir them with a wooden spatula until they are cold.

This is a soft cooling dressing, and is a convenient basis for more active preparations.

Cerātum Plumbi Acetātis.

Cerate of Acetate of Lead.

Take of Acetate of lead in powder, two drachms,
White wax two ounces,
Olive oil half a pint;

Dissolve the wax in seven fluidounces of the oil, and, to these add gradually the acetate of lead, separately rubbed with the remainder of the oil, and stir them with a wooden spatula until they unite.

A cooling dressing, in cases of burns and excoriations.

Cerātum Plumbi Compositum.

Compound Cerate of Lead.

Take of solution of subacetate of lead, two fluidounces and a half,
Yellow wax four ounces,
Olive oil nine fluidounces,
Camphor half a drachm;

Mix the melted wax with eight fluidounces of the oil; then remove them from the fire, and, when they begin to thicken, add gradually the solution of subacetate of lead, and stir them constantly with a wooden spatula, until they become cold. Lastly, mix with them the camphor dissolved in the remainder of the oil.

This is commonly known by the name of *Goulard's Cerate.* It is applicable to the same cases as the preceding cerate. It is stated to be particularly serviceable in chronic opthalmia of the tarsus, and for the increased secretion of tears, which so frequently affects the eyes of persons advanced in years.

Cerātum Resīnæ.

Cerate of Resin.

Take of Yellow resin,
Yellow wax, of each a pound,
Olive oil a pint;

Melt the resin and wax together over a slow fire; then add the oil, and whilst the cerate is hot, strain it through a linen cloth.

This is commonly called *yellow basilicon.* It is employed as an application to foul and indolent ulcers.

Cerātum Sabīnæ.

Cerate of Savine.

Take of Fresh savine leaves bruised, a pound,
Yellow wax half a pound,
Prepared lard two pounds;

Boil the savine leaves, with the wax and lard melted together, and strain the cerate through a linen cloth.

In those cases in which the use of ceratum cantharidis excites too much irritation, this has been recommended as a substitute.

Ceratum Sapōnis.

Soap Cerate.

Take of Hard soap eight ounces,
Yellow wax ten ounces,
Semi-vitreous oxide of lead in powder, a pound,
Olive oil a pint,
Vinegar a gallon;

Boil the vinegar with the oxide of lead over a slow fire, constantly stirring them, until they incorporate; then add the soap, and boil again in a similar manner, until all moisture is evaporated; lastly, mix these with the wax previously dissolved in the oil.

This cerate is occasionally used as a cooling dressing.

Cerātum Simplex.

Simple Cerate.

Take of Olive oil four fluidounces,
Yellow wax four ounces;
Add the oil to the melted wax, and mix.

This is used as a cooling dressing, and as a basis for more active preparations.

OINTMENTS.

Unguentum Cantharĭdis.

Ointment of Cantharides.

Take of Cantharides in very fine powder, two ounces,
Distilled water eight fluidounces,
Resin cerate eight ounces;
Boil down the water with the cantharides to one half, and strain. Mix the cerate with the strained liquor; and then evaporate the mixture to a proper consistence.

This is sometimes employed for the same purpose as the Ceratum Cantharidis; it is a milder preparation, and frequently inefficacious.

Unguentum Cetacĕi.

Spermaceti Ointment.

Take of Spermaceti six drachms,
White wax two drachms,
Olive oil three fluidounces;
Melt them together over a slow fire, and stir them constantly until they are cold.

There is no difference in the properties of this and the Ceratum Cetacei, excepting that the ointment is softer. They are used for similar purposes.

Unguentum Elĕmi Composĭtum.

Compound Elemi Ointment.

Take of Elemi a pound,
Common turpentine ten ounces,
Prepared suet two pounds,
Olive oil two fluidounces;
Melt the elemi with the suet, then remove them from the fire, and immediately mix with them the turpentine and the oil; lastly, strain through a linen cloth.

Stimulant and digestive. It is used to keep open setons and issues, and as an application to ulcers which do not admit of the use of adhesive straps.

Unguentum Hydrargy̆ri Fortĭus.

Stronger Mercurial Ointment.

Take of Purified mercury two pounds,
Prepared lard twenty-three ounces,
Prepared suet an ounce;

First rub the mercury with the suet and a little of the lard, until globules are no longer visible; then add the rest of the lard, and mix.

Process.—During trituration with the fatty matter, the mercury is probably reduced to the same state as that in which it exists in the Pilulæ Hydrargyri; and I have already observed that further experiments appear to me requisite to decide, whether it is merely mechanically divided, or oxidated.

Medicinal uses.—This ointment furnishes a prompt, and probably one of the least exceptionable modes of introducing mercury into the system. It is generally applied by rubbing ʒss to ʒi. on some part of the body where the cuticle is thin, generally, in syphilitic cases, on the inside of the thigh: in chronic hepatitis it is usually applied in the region of the liver.

As the preparation of this ointment is an exceedingly tedious operation, various means, and most of them of an objectionable nature, have been resorted to in order to shorten it. Some employ oleum sulphuratum, the use of which, on account of the well-known power of sulphur in diminishing the effects of mercury, ought always to be reprobated. By others, turpentine is used on account of its tenacity; but this is apt to produce pustules, which prevent the continuance of the friction. The ointment contains half its weight of mercury.

Unguentum Hydrargȳri Mitĭus.

Milder Mercurial Ointment.

Take of Stronger mercurial ointment a pound,
Prepared lard two pounds;
Mix.

This is used as a dressing, and for those purposes in which the preceding preparation would be too powerful. Six drachms contain one drachm of mercury.

Unguentum Hydrargȳri Nitrātis.

Ointment of Nitrate of Mercury.

Take of Purified mercury an ounce,
Nitric acid eleven fluidrachms,
Prepared lard six ounces,
Olive oil four fluidounces;

First dissolve the mercury in the acid; then, while the solution is hot, mix it with the lard and oil melted together.

Process.—By the decomposition of a portion of the nitric acid, the mercury is oxidized and dissolved by the acid remaining undecomposed.

Medicinal uses.—Stimulant and detergent. When its strength is diminished by the addition of lard, it is a local remedy of great efficacy in eruptions and various cutaneous diseases.

Unguentum Hydrargўri Nitrĭco-oxўdi.

Ointment of Nitric-oxide of Mercury.

Take of Nitric-oxide of mercury an ounce,
White wax two ounces,
Prepared lard six ounces;
To the wax and lard, melted together, add the nitric-oxide of mercury, rubbed to a very fine powder, and mix.

This is applied in the same manner and for similar purposes as the preceding ointment.

Unguentum Hydrargўri Præcipitāti Albi.

Ointment of White Precipitated Mercury.

Take of White precipitated mercury a drachm,
Prepared lard an ounce and a half;
To the lard, melted over a slow fire, add the precipitated mercury, and mix.

This ointment is stimulant and detergent.

Unguentum Picis Nigræ.

Ointment of Black Pitch.

Take of Black pitch,
Yellow wax,
Yellow resin, of each nine ounces,
Olive oil a pint;
Melt them together, and strain through a linen cloth.

Digestive and stimulant.

Unguentum Picis Liquĭdæ.

Ointment of Liquid Pitch.

Take of Liquid pitch (Tar)
Prepared suet, of each a pound;
Melt them together, and strain through a linen cloth.

This ointment is employed for the removal of tetter, and in tinea capitis.

Unguentum Sambūci.

Ointment of Elder.

Take of Elder flowers,
Prepared lard, of each two pounds;
Boil the elder flowers in the lard until they become crisp; then strain through a linen cloth.

This is used for the same purposes as the Unguentum Cetacei, over which it possesses no advantage but a pleasant smell.

Unguentum Sulphŭris.

Ointment of Sulphur.

Take of Sublimed sulphur three ounces,
Prepared lard half a pound;
Mix.

Unguentum Sulphŭris Composĭtum.

Compound Ointment of Sulphur.

Take of Sublimed sulphur half a pound,
White hellebore root in powder, two ounces,
Nitrate of potash a drachm,
Soft soap half a pound,
Prepared lard a pound and a half;
Mix.

These ointments are both used for the cure of the itch; the latter sometimes excites too much irritation.

Unguentum Verātri.

Ointment of White Hellebore.

Take of White hellebore root in powder, two ounces,
Prepared lard eight ounces,
Oil of lemons twenty minims;
Mix.

This is used for the cure of scabies, but is said to be less certain in its effects than the sulphur ointment.

Unguentum Zinci.

Ointment of Zinc.

Take of Oxide of zinc an ounce,
Prepared lard six ounces;
Mix.

This may be considered as an improvement upon the Ceratum Calaminæ. It is recommended as being very useful in some species of ophthalmia, smeared upon the tarsi every night.

LINIMENTS.

Linimentum Æruginis.

Liniment of Verdigris.

Take of Verdigris in powder an ounce,
Vinegar seven fluidounces,
Clarified honey fourteen ounces;
Dissolve the verdigris in the vinegar, and strain the solution through a linen cloth; then, having gradually added the honey, boil them down to a proper consistence.

Detergent and escharotic.

Linimentum Ammoniæ Fortius.

Stronger Liniment of Ammonia.

Take of Solution of ammonia a fluidounce,
Olive oil two fluidounces;
Shake them together, until they unite.

Linimentum Ammoniæ Subcarbonatis.

Liniment of Subcarbonate of Ammonia.

Take of Solution of subcarbonate of ammonia a fluid-ounce,
Olive oil three fluid ounces;
Shake them together until they unite.

In the former preparation, the union between the ammonia and oil is most perfect, on account of the carbonic acid combined with the ammonia of the latter; but in both cases a kind of fluid soap is formed. They are used as stimulants in cynanche tonsillaris, spread on flannel, and applied round the throat.

Linimentum Camphoræ.

Liniment of Camphor.

Take of Camphor half an ounce,
Olive oil two fluidounces;
Dissolve the camphor in the oil.

This is employed as a stimulant embrocation to sprains, bruises, and in rheumatism.

Linimentum Camphŏræ Compositūm.

Compound Camphor Liniment.

Take of Camphor two ounces,
Solution of ammonia six fluidounces,
Spirit of lavender a pint;
Mix the solution of ammonia with the spirit in a glass retort; then, with a slow fire, let a pint distil; and lastly, in this distilled liquor dissolve the camphor.

This is used for the same purposes as the former, and is much more powerful on account of the ammonia which it contains.

Linimentum Hydrargȳri.

Liniment of Mercury.

Take of Stronger mercurial ointment,
Prepared lard, of each four ounces,
Camphor an ounce,
Rectified spirit fifteen minims,
Solution of ammonia four fluidounces;
Rub the camphor, first with the spirit, then with the lard and mercurial ointment; and lastly, add gradually the solution of ammonia, and mix.

This liniment is stimulant and discutient. One drachm, containing nearly ten grains of mercury, may be rubbed on the affected part night and morning. It is said to salivate sooner than mercurial ointment, when largely employed.

Linimentum Sapōnis Compositum.

Compound Liniment of Soap.

Take of Hard soap three ounces,
Camphor an ounce,
Spirit of rosemary a pint;
Dissolve the camphor in the spirit, then add the soap, and macerate in a sand-bath, until the soap is dissolved.

This is a stimulant application; it is less powerful than the Linimentum Camphoræ Compositum, but is used for similar purposes.

Linimentum Terebinthĭnæ.

Liniment of Turpentine.

Take of Resin cerate a pound,
Oil of turpentine half a pint;
Add the oil of turpentine to the melted cerate, and mix.

This is employed as a dressing to recent burns, and until the loosening of the eschars. It is represented to be an effectual remedy; the parts being first bathed with warm oil of turpentine, and the liniment applied over them, thickly spread on linen.

CATAPLASMS.

Cataplasma Fermenti.

Cataplasm of Yest.

Take of Flour a pound,
Yest half a pint;
Mix, and expose the mixture to a gentle heat until it begins to rise.

This is applied to painful and foul ulcers, and it is stated that it diminishes the fœtor of the discharge, and hastens the sloughing of the sores. Its efficacy is supposed to depend upon the carbonic acid gas evolved during the fermentation occasioned by the yest.

Cataplasma Sinăpis.

Cataplasm of Mustard.

Take of Mustard seed,
Linseed, of each in powder, half a pound,
Hot vinegar a sufficient quantity;
Mix, until they acquire the consistence of a cataplasm.

Stimulant and rubefacient; applied, spread on cloth, to the soles of the feet, in the low stage of typhus fever, when stupor or delirium is present. It is also used in the same way in apoplexy and coma, and other cases in which there is a great determination to the head.

TABLE

SHOWING IN WHAT PROPORTION OPIUM AND CERTAIN PREPARATIONS OF ANTIMONY, ARSENIC, AND MERCURY, ARE CONTAINED IN SOME COMPOUND MEDICINES.

CONFECTIO OPII (*Confection of Opium*), in about thirty-six grains contains one grain of opium.

HYDRARGYRUM CUM CRETA (*Mercury with Chalk*), in about three grains contains one grain of mercury.

LINIMENTUM HYDRARGYRI (*Mercurial Liniment*), in about six drachms contains one drachm of mercury.

LIQUOR ARSENICALIS (*Arsenical Solution*), in two fluidrachms contains one grain of sublimed white arsenic.

LIQUOR HYDRARGYRI OXYMURIATIS (*Solution of Oxymuriate of Mercury*), in two fluidounces contains one grain of oxymuriate of mercury.

PILULÆ HYDRAYGYRI (*Mercurial Pills*), in three grains contain one grain of mercury.

PILULÆ HYDRARGYRI SUBMURIATIS COMPOSITÆ (*Compound Pills of Submuriate of Mercury*), in about four grains contain one grain of submuriate of mercury.

PILULÆ SAPONIS CUM OPIO (*Soap Pills with Opium*), in five grains contain one grain of opium.

PULVIS CORNU USTI CUM OPIO (*Powder of calcined Hartshorn with Opium*), in ten grains contains one grain of opium.

PULVIS CRETÆ COMPOSITUS CUM OPIO (*Compound Powder of Chalk with Opium*), in two scruples contains one grain of opium.

PULVIS IPECACUANHÆ COMPOSITUS (*Compound Powder of Ipecacuanha*), in ten grains contains one grain of opium.

PULVIS KINO COMPOSITUS (*Compound Powder of Kino*), in one scruple contains one grain of opium.

VINUM ANTIMONII TARTARIZATI (*Wine of tartarized Antimony*), in four fluidrachms contains one grain of tartarized antimony.

UNGUENTUM HYDRARGYRI FORTIUS (*Stronger Mercurial Ointment*), in two drachms contains one drachm of mercury.

UNGUENTUM HYDRARGYRI MITIUS (*Milder Mercurial Ointment*), in six drachms contains one drachm of mercury.

TABLE

OF

NEW NAMES.

SHOWING TO WHAT NAME OF THE FORMER PHARMACOPŒIA EACH RESPECTIVELY BELONGS.

NEW NAMES.	FORMER NAMES.
A.	
Acidum aceticum dilutum.	Acidum aceticum.
——— arseniosum.	Oxydum Arsenici album.
Arsenicum album.	Arsenici Oxydum.
————— sublimatum.	————— sublimatum.
C.	
Calumba.	Calumbæ *Radix*.
Cantharis.	Lytta.
——— vesicatoria.	——— Vesicatoria.
Ceratum Cantharidis.	Ceratum Lyttæ.
——— Plumbi Acetatis.	——— Plumbi Superacetatis.
Cucumis Colocynthis, *Poponum pulpa*.	Cucumis Colocynthis, *Pomorum pulpa*.
E.	
Elaterii *Pepones*.	Elaterii *Poma*.
Emplastrum Cantharidis.	Emplastrum Lyttæ.

I.	
Infusum Lini compositum.	Infusum Lini.
——— Rosæ compositum.	——— Rosæ.
——— Sennæ compositum.	——— Sennæ.
M.	
Magnesiæ Subcarbonas.	Magnesiæ Carbonas.
Marmor album.	Lapis calcarius.
Matonia Cardamomum.	Elattaria Cardamomum.
P.	
Pix abietina.	Pix arida.
—— nigra.	Resina nigra.
Plumbi Acetas.	Plumbi Superacetas.
T.	
Tinctura Cantharidis.	Tinctura Lyttæ.
V.	
Vinum Antimonii tartarizati.	Liquor Antimonii tartarizati.
Uuguentum Cantharidis.	Unguentum Lyttæ.
———— Picis nigræ.	———— Resinæ nigræ.

TABLE

OF

FORMER NAMES.

SHOWING TO WHAT NAME OF THE PRESENT PHARMACOPŒIA EACH RESPECTIVELY BELONGS.

FORMER NAMES.	NEW NAMES.
A	
Acidum aceticum.	Acidum aceticum dilutum.
Arsenici Oxydum.	Arsenicum album.
———— sublimatum.	———— album sublimatum.
C	
Calumbæ *Radix.*	Calumba.
Ceratum Lyttæ.	Ceratum Cantharidis.
——— Plumbi Superacetatis.	——— Plumbi Acetatis.
Cucumis Colocynthis, *Pomorum pulpa.*	Cucumis Colocynthis, *Peponum pulpa.*
E	
Elaterii *Poma.*	Elaterii *Pepones.*
Elettaria Cardamomum.	Matonia Cardamomum.
Emplastrum Lyttæ.	Emplastrum Cantharidis.

I	
Infusum Lini.	Infusum Lini compositum.
——— Rosæ.	——— Rosæ compositum.
——— Sennæ.	——— Sennæ compositum.
L	
Lapis calcarius.	Marmor album.
Liquor Antimonii tartarizati.	Vinum Antimonii tartarizati.
Lytta.	Cantharis.
——— vesicatoria.	——— vesicatoria.
M	
Magnesiæ Carbonas.	Magnesiæ Subcarbonas.
O	
Oxydum Arsenici album.	Acidum arseniosum.
P	
Pix arida.	Pix abietina.
Plumbi Superacetas.	Plumbi Acetas.
R	
Resini nigra.	Pix nigra.
T	
Tinctura Lyttæ.	Tinctura Cantharidis.
U	
Unguentum Lyttæ.	Unguentum Cantharidis.
——— Resinæ nigræ	——— Picis nigræ.

TABLE

SHOWING HOW MUCH EACH PREPARATION OF IRON CONTAINS ONE GRAIN OF OXIDE.

One gr. of oxide is coutained	in gr.	3·8 Ferri Sulphas
Do.	do.	1·2 —— Subcarbonas
Do.	do.	66.0 Ferrum Ammoniatum
Do.	do.	5·0 ——— Tartarizatum
Do.	do.	20·0 Pilulæ Ferri compositæ
Do.	do.	♏xxx Liquor Ferri Alkalini
Do.	do.	f℥iss Mistura Ferri composita
Do.	do.	fʒiij Tinctura Ferri Ammoniati
Do.	do.	♏xiv ———— Muriatis
Do	do.	f℥j Vinum Ferri

TABLE

REGULATING THE ORDINARY PROPORTION OF DOSES ACCORDING TO THE AGE OF THE PATIENT.

For an Adult	1 e. g.	ʒj
From 21 Years to 14	$\frac{2}{3}$	℈ij
14 ...... 7	$\frac{1}{2}$	ʒss
7 ...... 4	$\frac{1}{3}$	℈j
4	$\frac{1}{4}$	gr. xv.
3	$\frac{1}{6}$	gr x
2 ,....................	$\frac{1}{8}$	gr. viij
1	$\frac{1}{12}$	gr. v

POSOLOGICAL TABLE.

Absinthium	℈j	to	ʒj.
Acaciæ Gummi	ʒss		ʒij.
Acetum Colchici	fʒss		fʒj.
——— Scillæ	fʒss		fʒij.
Acidum aceticum dilutum	fʒj		f℥ss.
——— benzoicum	gr. x		ʒss.
——— citricum	gr. x		ʒss.
——— muriaticum	♏v		♏xx.
——— nitricum dilutum	♏x		♏xl.
——— sulphuricum dilutum	♏x		♏xl.
——— tartaricum	gr. x		ʒss.
Aconiti Folia	gr. j		gr. v.
Æther rectificatus	fʒss		fʒij.
Ærugo	gr. $\frac{1}{8}$		gr. j.
Allii Radicis Succus	fʒj		fʒij.
Aloes spicatæ Extractum	gr. v		gr. xv.
Alumen	gr. x		℈j.
Ammoniacum	gr. x		ʒss.
Ammoniæ Murias	gr. x		ʒss.
——— Subcarbonas	gr. v		℈j.
Anethi Semina	gr. x		ʒj.
Anisi Semina	gr. x		ʒj.
Anthemidis Flores	gr. x		ʒss.
Antimonii Sulphuretum	gr. x		ʒss.
——— præcipitatum	gr. j		gr. iv.
Antimonium tartarizatum (Diaphoretic)	gr. $\frac{1}{4}$		gr. ss.
———(Emetic)	gr. j		gr. ij.

Aqua Anethi	f℥ij	to f℥iv.
—— Carui		
—— Cinnamomi		
—— Fœniculi		
—— Menthæ piperitæ		
———— viridis		
—— Pimentæ		
—— Pulegii		
Argenti Nitras	gr. $\frac{1}{8}$	gr. j.
Armoraciæ Radix	℈j	ʒj.
Assafœtidæ Gummi-resina	gr. x	ʒss.
Balsamum Peruvianum	gr. x	ʒss.
———— tolutanum	gr. x	ʒss.
Belladonnæ Folia	gr. ss	gr. x.
Benzonium	gr. x	ʒss.
Bismuthi subnitras	gr. v	gr. xv.
Bistortæ Radix	gr. x	ʒj.
Cajuputi Oleum	♏j	♏v.
Calami Radix	gr. x	ʒj.
Calumbæ Radix	gr. x	℈j.
Cambogia	gr. ij	gr. x.
Camphora	gr. iij	℈j.
Canellæ Cortex	gr. x	ʒss.
Capsici Baccæ	gr. v	gr. x.
Cardamines Flores	℈j	ʒj.
Cardamomi Semina	gr. v	ʒss
Carui Semina	gr. x	ʒj.
Caryophylli	gr. v	ʒss.
————Oleum	♏ij	♏v.
Cascarillæ Cortex	gr. x	ʒj.
Cassiæ Pulpa	℥ss	℥j.
Castoreum	gr. v	℈j.
Catechu Extractum	gr. x	℈ij.

Centaurii Cacumina	gr. xv	to ʒj.
Cetaceum	℈j	ʒiss.
Cinchonæ cordifoliæ Cortex	gr. x	ʒiss.
——— lancifoliæ Cortex	gr. x	ʒiss.
——— oblongifoliæ Cortex	gr. x	ʒiss.
Cinnamomi Cortex	gr. v	℈j.
——— Oleum	♏j	♏iij.
Colchici Radix	gr. j	gr. v.
Colocynthidis Pulpa	gr. j	gr. v.
Confectio Amygdalarum	ʒj	ʒij.
——— Aromatica	gr. x	ʒj.
——— Aurantiorum	ʒj	℥j.
——— Cassiæ	ʒj	℥j.
——— Opii	gr. x	ʒss.
——— Rosæ caninæ	ʒj	℥j.
——— Gallicæ	ʒj	℥j.
——— Scammoneæ	℈j	ʒj.
——— Sennæ	ʒj	ʒiij.
Conii Folia	gr. ij	℈j.
Contrajervæ Radix	gr. x	ʒss.
Copaiba	℈j	ʒj.
Coriandri Semina	℈j	ʒj.
Creta præparata	gr. x	gr. xl.
Cumini Semina	℈j	ʒj.
Cupri Sulphas	gr. ss	gr. ij.
——— (Emetic)	gr. ij	gr. x.
Cuprum ammoniatum	gr. $\frac{1}{4}$	gr. v.
Cuspariæ Cortex	gr. x	ʒj.
Dauci Semina	℈j	ʒj.
Decoctum Aloes compositum	f℥ss	f℥j.
——— Cinchonæ	f℥j	f℥iij.
——— Dulcamaræ	f℥ss	f℥j.
——— Lichenis	f℥j	f℥ij.
——— Sarsaparillæ	f℥iv	Oss.

Decoctum Sarsaparillæ compositum.....	f℥iv to	f℥vj.
——— Senegæ....................	f℥ss	f℥iij.
——— Ulmi	f℥iv	f℥vj.
Digitalis Folia	gr. ss	gr. iij.
Dolichi Pubes	gr. v	gr. x.
Extractum Aconiti	gr. ss	gr. v.
——— Aloes....................	gr. v	gr. xv.
——— Anthemidis	gr. x	℈j.
——— Belladonnæ	gr. j	gr. v.
——— Cinchonæ	gr. x	ʒss.
—————— resinosum	gr. x	ʒss.
——— Colocynthidis	gr. v	ʒss.
—————— compositum ...	gr. v	ʒss.
——— Conii.....................	gr. v	℈j.
——— Elaterii	gr. ss	gr. ij.
——— Gentianæ	gr. x	ʒss.
——— Hæmatoxyli...............	gr. x	ʒss.
——— Humuli	gr. v	℈j.
——— Hyoscyami................	gr. v	℈j.
——— Jalapæ...................	gr. x	℈j.
——— Lactucæ	gr. v	gr. xv.
——— Opii.....................	gr. j	gr. v.
——— Papaveris	gr. ij	℈ij.
——— Rhei	gr. x	ʒss.
——— Sarsparillæ	gr. x	ʒj.
——— Stramonii	gr. $\frac{3}{4}$	gr. ij.
——— Taraxaci	gr. x	ʒj.
Ferri Sulphas	gr. j	gr. v.
—— Subcarbonas	gr. v	gr. xxx.
Ferrum ammoniatum................	gr. iij	gr. xv.
——— tartarizatum	gr. x	ʒss.
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Fœniculi Semina....................	℈j	ʒj.

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Gentianæ Radix	gr. x		ʒj.
Granati Cortex	℈j		ʒj.
Guaiaci Resina	gr. x		ʒss.
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——— nigri Radix	gr. x		℈j.
Humuli Strobili	gr. x		℈j.
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——— rubrum	gr. ss		gr. j.
——— Oxymurias	gr. $\frac{1}{8}$		gr. $\frac{1}{4}$.
——— Submurias (Alterative)	gr. ss		gr. j.
——— (Purgative)	gr. v		gr. x.
——— Sulphuretum nigrum	gr. v		ʒss.
Hydrargyrum cum Creta	gr. x		ʒss.
——— purificatum	℥ss		℥iv.
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——— Aurantii compositum	f℥j		f℥ij.
——— Calumbæ	f℥iss		f℥ij.
——— Caryophyllorum	f℥j		f℥ij.
——— Cascarillæ	f℥iss		f℥ij.
——— Catechu compositum	f℥iss		f℥iij.
——— Cinchonæ	f℥j		f℥iij.
——— Cuspariæ	f℥iss		f℥ij.
——— Digitalis	fʒij		f℥ss.
——— Gentianæ compositum	f℥iss		f℥ij.
——— Quassiæ	f℥iss		f℥ij.
——— Rhei	f℥j		f℥iij.
——— Rosæ compositum	f℥j		℥iss.
——— Sennæ compositum	f℥iij		f℥iv.
——— Simaroubæ	f℥j		f℥ij

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——————— Subcarbonatis.... ...	fʒss		fʒj.
——— Arsenicalis..................	♏iv		♏xxx.
——— Calcis.....................	f℥j		f℥vj.
—————— Muriatis...............	♏xx		fʒj.
——— Ferri alkalini................	fʒss		fʒj.
——— Hydrargyri oxymuriatis	fʒj		f℥ss.
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—————— Subcarbonatis	♏x		fʒj.
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——— Subcarbonas................	℈j		ʒj.
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——— Cretæ	f℥j		f℥ij.
——— Ferri composita	f℥j		f℥ij.
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——— Moschi	f℥j		f℥ij.
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——— Anthemidis	♏v		♏x.
——— Carui	♏j		♏v.
——— Caryophilli	♏j		♏v.
——— Cinnamomi	♏j		♏iij.
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——— Lavandulæ	♏j		♏v.
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————— viridis	♏ij		♏v.
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——— Pulegii	♏j		♏v.
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——— Rosmarini	♏ij		♏v.
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——— Nitras	gr. x	ʒss.
——— Subcarbonas	gr. x	ʒss.
——— Sulphas	gr x	℥ss.
——— Supersulphas	gr. x	ʒij.
——— Supertartras	ʒj	℥ss.
——— Tartras	ʒj	℥j.
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——- antimonialis	gr. v	gr. x.
——— Cinnamomi compositus	gr. v	gr. x.
——- Contrajervæ compositus	gr. xv	ʒss.
——— Cornu usti cum Opio	gr. xv	ʒss.
——- Cretæ compositus	ʒss	ʒj.
——- Cretæ compositus cum Opio	℈j	℈ij.
——— Ipecacuanhæ compositus	gr. v	℈j.
——— Kino compositus	gr. v	℈j.
——— Scammoneæ compositus	gr. x	℈j.
——- Sennæ compositus	℈j	ʒj.

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-—— Gallicæ Petala	℈j		ʒj.
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——— ——— compositus	fʒss		fʒj.
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——— ——— sulphurici	fʒj		fʒiij.
——— ——— compositus	fʒj		fʒiij.
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——— ——— succinatus	♏x		fʒss.
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——— Armoraciæ compositus	fʒij		f℥ss.
——— Carui	fʒij		f℥ss.
——— Cinnamomi	fʒj		f℥ss.
——— Colchici Ammoniatus	fʒss		fʒj.
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——— Lavandulæ compositus	fʒj		f℥ij.
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——— Catechu	fʒj	fʒiij.
——— Cinchonæ	fʒj	fʒij.
———— composita	fʒj	fʒiij.
——— Cinnamomi	fʒj	fʒij.
———— composita	fʒj	fʒij.
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——— Ferri ammoniacalis	fʒss	fʒij.
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——— Jalapæ	fʒj	f℥ss.
——— Kino	fʒj	fʒij.
——— Myrrhæ	fʒss	fʒj.
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